



CHEMICAL INDUSTRIES (FAR EAST) LIMITED.
化学工业(远东)有限公司

Title SDS – Citric Acid Solution	Doc. No.	TDC-SDS-Lab-C008
	Revision	C
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SAFETY DATA SHEET (SDS)

CITRIC ACID SOLUTION

Preface

Citric Acid 50% Solution is a clear colorless to pale yellow liquid. Citric Acid is moderately to severely irritating to eyes, and moderately irritating to skin, and respiratory tract.

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1	CHEMICAL PRODUCT & COMPANY IDENTIFICATION
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Product name : Citric Acid solution, 50%

Chemical name : Citric Acid solution, 50%

Chemical formula : C₆H₈O₇

Other names : 2-Hydroxy-1,2,3-Propanetricarboxylic Acid

Company's name & address : Chemical industries (Far East) Limited

(head office) : 3, Jalan Samulun, Jurong Town, Singapore 629127

Tel: 6265 0411 Fax: 6265 6690 Email: chemical.ind@cil.com.sg

(manufacturing plant) : 91, Sakra Avenue, Jurong Island, Singapore 627882

Tel: 6867 6977 Fax: 6867 6972 Email: sakraplant@cil.com.sg

Emergency telephone number : 6265 0411 or 6867 7433 (Manufacturing plant's control room)

2	HAZARD IDENTIFICATION
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GHS CLASSIFICATION :

Acute Toxicity :

Oral : Not classified

Dermal: Category 5

Inhalation : Not classified

Skin corrosion/irritation: Category 3

Serious eye damage/irritation : Category 2A

Skin sensitization: Not classified

Carcinogenicity Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified

GHS label elements

Pictograms:



Warning

Signal word:

Hazard Statement(s):

H313: May be harmful in contact with skin.

H316: Causes mild skin irritation

H319: Causes serious eye irritation

Precautionary Statement(s):

Prevention:

P264: Wash hands thoroughly after handling.

P280: Wear eye protection/ face protection/ protective clothing/ protective gloves

Response:

P305 + P351 + P339: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313: If eye irritation persists: Get medical advice/ attention.

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3	COMPOSITION / INFORMATION ON INGREDIENTS
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Ingredients	CAS No. ¹	EC-No. ²	EC-Index-No. ³	Symbol / R-phrase	Content
Citric Acid	: 77-92-9	201-069-1	607-001-00-0	Xi, R36/38 Xi = Irritant R 36/38 = Irritating to eyes and skin	≤ 50 %

4	FIRST-AID MEASURES
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Types of contact...	First aid measures
Eye contact	Wash eyes thoroughly with water for at least 15 minutes with eyelids held widely open. Check for and remove any contact lenses. Immediately summon for eye doctor / specialist.
Skin contact	Immediately wash off with plenty of water. Any clothing contaminated with citric acid should be removed immediately and washed before re-use. Summon medical attention for serious exposure.
Inhalation	Remove to fresh air and give oxygen if necessary. Summon medical attention.
Ingestion	Don't induce vomiting. If victim is conscious give small quantities of water to drink. Spontaneous vomiting may occur. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious victim. Immediately summon medical attention.

Note: Speed in removing victim from contaminated area and removing citric acid from eyes / skin are of primary importance.

5	FIRE-FIGHTING MEASURES
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- Fire-fighting media : Suitable fire-fighting/extinguishing agent for surrounding fire. Use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.
- Protective equipment for fire-fighting : Fire fighters should use full protective clothing and full-face positive pressure self-contained breathing apparatus.
- Special risks : In a fire or if heated, a pressure increase will occur and the container may burst. Decomposition products include carbon dioxide and carbon monoxide. Prevent fire-fighting water contaminated with the substance to enter drains or sewerage systems.

6	ACCIDENTAL RELEASE MEASURES
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- Personal protective equipment : Avoid contact with skin / eye. Use full protective clothing, rubber gloves, rubber boots, and eye goggles. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
- Procedure to stop / minimize :
 1. Prevent further leakage if it is safe to do so.
 2. For minor spill / leak, dilute with water and mop up if water soluble. If water insoluble, absorb with an inert dry material and place in appropriate waste disposal container and forward to licensed waste disposal contractors for disposal.
 3. If major spill / leak is not under control, inform SCDF / fire brigade / police / supplier
 4. Clean up affected area.
- Method to clean up : Absorb with an inert dry material. Neutralise acids by applying basic substances (soda ash or lime) or use an acid spill kit. Collect spillage in containers, seal securely and deliver for disposal. Flush the affected area with plenty of water. Dispose in accordance to current local disposal regulations.

¹ CAS – Chemical Abstract Service

² EC no. – No. given by EC Commission

³ EC Index No. – as per appendix 1 of the regulation 67/548/EC

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(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations.)

Environmental precautions : Prevent liquid from entering sewer, surface water, ground water and soil. Advise authorities if substance has entered a watercourse / drain / soil.

7	HANDLING & STORAGE
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Usual shipping containers : Steel (stainless steel) tankers, polyethylene drums / carboys.

Handling : Keep containers closed tightly. Handle containers with care. Container remains hazardous when empty since they retain product residues (vapours, liquids). Continue to observe all precautions until it had been properly washed.

Storage : Store in a cool, dry, ventilated area away from heat, sparks and flames. Store away from oxidizing agents, reducing agents, strong bases and water/moisture. Store in temperatures between 5°C and 30°C.

8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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Engineering controls : Provide adequate general and/or local ventilation in areas of storage and use where citric acid is present to meet PEL (personal exposure limit) requirements. Provide water supply / emergency eyewash / shower near area of handling.

Safe work practices / industrial hygiene : Wash hands and face after working with the substance, and before eating / drinking. Immediately remove contaminated clothing. Wash before re-using.

Personal protection

1. Eye protection : Use safety goggle / face shield.
2. Skin protection : Use rubber gloves, protective clothing and rubber boots. Chemical resistance of materials should be ascertained with the vendor.
3. Respiratory protection : Use approved half-face filter respirator suitable for the substance to be worn when dust / mist is present above permissible limits.
4. Other protective equipment : Uniform, apron, long-sleeved lab coat

Occupational exposure standards : TWA 8 hours = None listed
 STEL = None listed (Singapore permissible exposure limit)
 (TWA – time weighted average, STEL – Short term exposure limit)

9	PHYSICAL & CHEMICAL PROPERTIES
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Appearance : Clear, colorless to pale yellow liquid

Boiling point : About 104°C

Melting point : 0°C

Vapor pressure (at 25°C) : Not available

Specific gravity (at 25°C) : 1.24 – 1.26

Solubility in water (at 25°C) : Completely soluble

Corrosiveness : Will corrode copper, zinc, aluminum and their alloys.

Evaporation rate : Not applicable

Vapor density : Not applicable

Odor : Odorless

pH (at 100 g/l, 20°C) : Not available

Flash point : Not applicable

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Explosive limits lower : Not applicable
upper : Not applicable
Auto-ignition temperature : Not applicable
Flammability : Not applicable
Molecular weight : 192.13

10	STABILITY & REACTIVITY
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Reactivity : Stable under recommended conditions.
Stability : Stable
Possibility of hazardous reactions : Under normal and recommended conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid instability : Avoid exposure to heat.
Incompatible materials : Oxidizing materials. Alkalis.
Hazardous decomposition products : Carbon dioxide and carbon monoxide may be formed when heated to decomposition.

11	TOXICOLOGICAL INFORMATION
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Ingestion : Irritating to mouth, throat and stomach.
Eye contact : Causes serious eye irritation.
Skin contact : Causes irritation to skin.
Inhalation : Causes irritation to the respiratory tract.
Animal Toxicity Data : LD50 (oral, rat): 3 mg/kg.
Skin irritation (rabbit): 500 mg/ 24H, mild
Eye (rabbit): 720 ug/24H, severe

12	ECOLOGICAL INFORMATION
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Fish toxicity : Fish mortality LC50 (48 hrs, *Leuciscus idus melanotus*): 440ppm
Biodegradability : This material is expected to biodegrade.
Environmental Effects : Not available.

13	DISPOSAL CONSIDERATIONS
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Considerations : Do not dispose substance directly to sewerage, ground-water and surface-water system. Consult approved waste collectors for disposal.
Singapore regulations : Dispose in accordance to current local disposal regulations.
(In Singapore, *The Environmental Public Health (Toxic industrial waste) Regulations.*)

14	TRANSPORT INFORMATION
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Proper shipping name (for land / sea / air) : Corrosive liquid, acidic, organic (Citric Acid)

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	UN No. ⁴	Hazard class	PSA Group ⁵
<u>Land</u> [The Environmental Pollution Control (Hazardous substances) Regulations]	3265	8	II
<u>Sea</u> (IMDG ⁶ / IMO ⁷)	3265	8	II
<u>Air</u> (ICAO ⁸ / IATA ⁹)	3265	8	II

15	REGULATORY INFORMATION
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In Singapore:

Import & sale of hazardous substances : Environmental Protection and Management (Hazardous Substances) Regulations

Disposal of obsolete / expired chemicals / waste : Environmental Public Health (Toxic Industrial Waste) Regulations

Symbol : Xi Irritant

R-phases : R 36/38 Irritating to eyes and skin.

S-phases : S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37/39 Wear suitable gloves and eye/face protection

	Hazard type	Hazard class.	UN No.	Hazchem code
Citric acid	Irritant	8	3265	2we

NFPA rating ¹⁰	Health	Reactivity	Flammability	Other
	1	0	1	None

16	OTHER INFORMATION
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Revision No.	Date of issue	Description of changes
A	28 January 2015	Initial release
B	6 December 2019	Overall reviewed
C	1 March 2023	Overall reviewed

⁴ UN No. – No. Issued by United Nations Subcommittee of Experts

⁵ PSA Group – Grouping of dangerous goods by Port Of Singapore Authority

⁶ IMDG – International Maritime Dangerous Goods

⁷ IMO – International Maritime Organisation

⁸ ICAO – International Civil Aviation Organisation

⁹ IATA – International Air Transport Association

¹⁰ NFPA rating – rating according to National Fire Protection Agency