

Safety Data Sheet

1. Chemical product and company identification

Product name : Citric acid

Company information

Name of manufacturer	: KANTO CHEMICAL CO., INC.
Address	: 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	: Deveropment & Promotion Department, Reagent Division
Telephone number	: +81-3-6214-1093
Facsimile number	: +81-3-3241-1054
Mail address	: food-info@kanto.co.jp
Reference No	: 58012
Recommended uses and restrictions	: Food additives

2. Hazards identification

GHS classification

Health hazards	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation)

Hazard
pictograms



Signal word : Warning

Hazard statements	: Causes serious eye irritation May cause respiratory irritation
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Precautionary statements

Prevention	: Avoid breathing mist/vapors. Wash hands, forearms and face thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	: IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor if you feel unwell. If eye irritation persists: Get medical advice/attention.
Storage	: Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : 2-Hydroxypropane-1,2,3-tricarboxylic acid monohydrate

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Citric acid monohydrate	≥ 99.5	C ₆ H ₈ O ₇ · H ₂ O	Listed	201-069-1	5949-29-1

*Concentration : As a anhydrous matter.

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.

First-aid measures after ingestion : Rinse mouth with water. Give the victim one or two glasses of water or milk. Do not induce vomiting. Get medical treatment as soon as possible.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, alcohol resistant foam

Unsuitable extinguishing media : Foam extinguisher

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Fight fire from windward.

Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Alcohol-resistant foam extinguisher is effective for a large scale fire.

Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated



wastewater into the environment must be avoided.

Methods and Equipment for Containment and Cleaning up

For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.

7. Handling and storage

Handling

Technical measures : Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.

Precautions for safe handling : Avoid formation of dust and aerosols.

Storage

Storage conditions : Keep the bottle tightly closed and store in a cool place (below 25 °C).

Material used in packaging/containers : Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	Not established
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Appropriate engineering controls : Install a local ventilation system in case of dusty condition.

Protective equipment

Respiratory protection : If necessary, wear dust mask

Hand protection : Impervious protective gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Solid

Color : White

Odor : Odorless

pH : Aqueous solutions are acidic (pH2.2, 0.1N soln.)

Melting point : No data available

Freezing point : No data available

Boiling point : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : 40 - 50 ° C (lose water of crystallization)

Flammability (solid, gas) : Flammable solid

Vapor pressure : No data available

Relative density : 1.542

Density : No data available

Relative gas density : No data available

Solubility : Water: Soluble. Organic solvents: Soluble in ethanol.

Partition coefficient n-octanol/water (log Pow) : No data available



Explosive limits (vol %) : No data available
Viscosity, kinematic : No data available
Particle characteristics : No data available

10. Stability and reactivity

Reactivity : May react with oxidizing substances.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions : Stable under normal conditions of use.
Conditions to avoid : Light, heat.
Incompatible materials : Oxidizing substances.
Hazardous decomposition products : Carbon monoxide.

11. Toxicological information

Acute toxicity (oral) : No classification
mouse LD50=5400mg/kg (as citric acid)
Acute toxicity (dermal) : No classification
rat LD50>2000mg/kg (as citric acid)
Acute toxicity (inhalation) : No classification (gas)
Classification not possible (vapor)
Classification not possible (dust, mist)
Skin corrosion/irritation : No classification
It was classified as "No classification" because it was mildly irritating in the skin irritation test (according to OECD TG404, GLP) in rabbits.
Serious eye damage/irritation : Causes serious eye irritation
In the eye irritation study in rabbits (OECD TG405, GLP compliant), the mean conjunctival redness score of the 30% solution was 3/3/3, and the mean conjunctival oedema score was 2.3/2.7/2.3, which did not recover completely after another 14 days. In addition, the mean conjunctival redness score of the 10% solution was 1/1/1, and it has been reported that the symptoms recovered after another 7 days. Thus, it was classified into category 2A.
Respiratory sensitization : Classification not possible
Skin sensitization : Classification not possible
Germ cell mutagenicity : No classification
As for in vivo, there are negative data on chromosome aberration assay in rat bone marrow cells. As for in vitro, there are negative data on reverse mutation test in bacteria.
Carcinogenicity : Classification not possible
Reproductive toxicity : No classification
Two-generation reproductive ability studies in rats showed no adverse effects on fertility. Moreover, in exposure tests in rats, rabbits and hamsters during organogenesis, no adverse effects on fetal development, including teratogenicity, were noted in any of those animal species. Citrates are also used as medicines, but no reproductive toxicity has been reported.
STOT-single exposure : May cause respiratory irritation
In inhalation exposure tests, bronchoconstriction was noted in dogs and guinea pigs, and cough was noted in humans and guinea pigs. Thus, it was classified into category 3 (respiratory tract irritation).



STOT-repeated exposure	: Classification not possible In oral exposure tests in rats, 6-week exposure at 2260mg/kg/day showed no effects, and NOAEL of 2-year oral exposure test was 1200mg/kg/day. In addition, 1-year oral exposure to 1.2% produced little adverse effects. Although it is classified as "No classification" via oral routes, it was classified as "Classification not possible" due to lack of information on other routes.
Aspiration hazard	: Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	: No classification Daphnia magna LC50=1535mg/L/24h (as citric acid)
Aquatic chronic	: No classification

Persistence and degradability

Readily biodegradable
BOD : 77% (14-day) (as citric acid)

Bioaccumulative potential

Low bioconcentration
log Pow : -1.64 (as citric acid)

Mobility in soil

High mobility
Koc : 10 (as citric acid)

Hazardous to the ozone layer

Ozone	: Classification not possible
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13. Disposal considerations

Ecology - waste materials	: Mixed with flammable organic solvents and burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
Contaminated container and packaging	: In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Transport hazard class(es) (IMDG)	: Not applicable

Air transport(IATA)

UN-No. (IATA)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable
Packing group (IATA)	: Not applicable
Transport hazard class(es) (IATA)	: Not applicable



Marine pollutant : Not applicable

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
Handbook of Dangerous Substances Springer-Verlag Tokyo
(1991) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National
Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253.

