

# Safety Data Sheet

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## 1. Product and company identification

**Product name** 1M Citric Acid

**Catalogue Number** SH31172

**Product type** Liquid.

**Original preparation date** 10/24/2024

**Date of issue/Date of revision** 11/20/2025

**Date of previous issue** 9/3/2025

Relevant identified uses of the substance or mixture and uses advised against

For Further Manufacturing or Research Use. Not for Diagnostic or Therapeutic Use.

Supplier / Manufacturer

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## 2. Hazards identification

**GHS Classification** EYE IRRITATION - Category 2A  
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) -  
Category 3

GHS label elements

**Hazard pictograms**



**Signal word**

Warning

**Hazard statements**

Causes serious eye irritation.  
May cause respiratory irritation.

**Precautionary statements**

**General**

**Prevention**

Wear eye or face protection. Use only outdoors or in a well-ventilated area. Avoid breathing vapor.  
Wash thoroughly after handling.

**Response**

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON  
CENTER or doctor if you feel unwell. 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 or attention.

**Storage**

Store locked up. Store in a well-ventilated place. Keep container tightly closed.

**Disposal**

Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Other hazards which do not result in classification**

None known.

### 3. Composition/information on ingredients

**Substance/mixture** Mixture

Ingredient name	含有量(%)	Identifiers	Official Gazette notice reference number	
			CSCL	ISHL
citric acid	<19.5	CAS: 77-92-9	2-1318	(2)-1318

### 4. First aid measures

<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
<b>Ingestion</b>	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayedPotential acute health effects

<b>Inhalation</b>	May cause respiratory irritation.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Ingestion</b>	No known significant effects or critical hazards.

Short term exposure

<b>Potential delayed effects</b>	Not available.
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Over-exposure signs/symptoms

<b>Inhalation</b>	Adverse symptoms may include the following: respiratory tract irritation coughing
<b>Skin contact</b>	No specific data.
<b>Eye contact</b>	Adverse symptoms may include the following: pain or irritation watering redness
<b>Ingestion</b>	No specific data.

<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
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<b>Notes to physician</b>	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
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## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Special protective actions for fire-fighters</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
<b>Environmental precautions</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and materials for containment and cleaning up

<b>Small spill</b>	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
<b>Large spill</b>	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

## 7. Handling and storage

### Handling

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.
<b>Advice on general occupational hygiene</b>	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### Storage

<b>Conditions for safe storage</b>	Store between the following temperatures: 15 to 30°C (59 to 86°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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## 8. Exposure controls/personal protection

<b>Appropriate engineering controls</b>	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
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Occupational exposure limits

### Biological exposure indices

No exposure indices known.

### Individual protection measures

<b>Respiratory protection</b>	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
<b>Hand protection</b>	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
<b>Eye protection</b>	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
<b>Skin protection</b>	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Physical state	Liquid.						
Color	Clear. Colorless.						
Odor	Not available.						
Odor threshold	Not available.						
pH	1 to 2						
Melting point/freezing point	Not available.						
Boiling point or initial boiling point and boiling range	Not available.						
Flash point	[Product does not sustain combustion.]						
		Closed cup				Open cup	
	Ingredient name	°C	°F	Method	°C	°F	Method
	citric acid	100	212				
Evaporation rate	Not available.						
Flammability	Not available.						
Lower and upper explosive (flammable) limits	Not available.						
Vapor pressure	Not available.						
		Vapor Pressure at 20°C				Vapor pressure at 50°C	
	Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
	water	17.5	2.3				
	citric acid	0.000000017	0.0000000023				
Relative vapor density	Not available.						
Relative density	Not available.						
Solubility in water	Not available.						
Partition coefficient: n-octanol/ water	Not applicable.						
Auto-ignition temperature	Not available.						
	Ingredient name		°C	°F		Method	
	citric acid		1010	1850			
Decomposition temperature	Not available.						
Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.						
<u>Particle characteristics</u>							
Median particle size	Not applicable.						
SADT	Not available.						
Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.						
Flow time (ISO 2431)	Not available.						
Burning rate	Not applicable.						
Burning time	Not applicable.						

## 10. Stability and reactivity

<b>Reactivity</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	No specific data.
<b>Incompatible materials</b>	Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result
citric acid	<b>Rat - Oral - LD50</b> 3 g/kg

### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
citric acid	3000	N/A	N/A	N/A	N/A

### Skin corrosion/irritation

Product/ingredient name	Result
citric acid	<b>Rabbit - Skin - Mild irritant</b> <u>Duration of treatment/exposure:</u> 24 hours <u>Amount/concentration applied:</u> 500 mg <b>Rabbit - Skin - Moderate irritant</b> <u>Amount/concentration applied:</u> 0.5 Ml

**Conclusion/Summary [Product]** Not available.

### Serious eye damage/eye irritation

Product/ingredient name	Result
citric acid	<b>Rabbit - Eyes - Severe irritant</b> <u>Duration of treatment/exposure:</u> 24 hours <u>Amount/concentration applied:</u> 750 ug

**Conclusion/Summary [Product]** Not available.

### Respiratory corrosion/irritation

Not available.

**Conclusion/Summary [Product]** Not available.

### Respiratory or skin sensitization

Not available.

### Skin

**Conclusion/Summary [Product]** Not available.

### Respiratory

**Conclusion/Summary [Product]** Not available.

### Germ cell mutagenicity

Not available.

**Conclusion/Summary [Product]** Not available.

#### Carcinogenicity

Not available.

**Conclusion/Summary [Product]** Not available.

#### Reproductive toxicity

Not available.

**Conclusion/Summary [Product]** Not available.

#### Specific target organ toxicity (single exposure)

##### **Product/ingredient name**

1M Citric Acid

##### **Result**

SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE)  
(Respiratory tract irritation) - Category 3

#### Specific target organ toxicity (repeated exposure)

Not available.

#### Aspiration hazard

Not available.

## 12. Ecological information

#### Toxicity

##### **Product/ingredient name**

citric acid

##### **Result**

##### **Acute - LC50 - Marine water**

Crustaceans - Green crab - *Carcinus maenas* - Adult  
160 mg/l [48 hours]  
Effect: Mortality

**Conclusion/Summary [Product]** Not available.

#### Persistence/degradability

Not available.

**Conclusion/Summary [Product]** Not available.

#### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
citric acid	-1.8	-	Low

#### Mobility in soil

**Soil/Water partition coefficient** Not available.

**Mobility** Not available.

**Hazardous to the ozone layer** Not applicable.

**Other adverse effects** No known significant effects or critical hazards.

## 13. Disposal considerations

#### **Disposal methods**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class (es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-
Special precautions for user	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.		
Transport in bulk according to IMO instruments	Not available.		

## 15. Regulatory information

### Fire Service Law

None of the components are listed.

**Fire Service Law - Obstructive materials** Not listed

### Industrial Safety and Health Act

Not applicable.

#### Ordinance on the Prevention of the Hazard due to Specified Chemical Substances

None of the components are listed.

**Organic solvents poisoning prevention** Not applicable.

Substance(s) requiring labelling

Chemicals requiring notification

**Chemical substances that cause skin disorders, etc. and other chemical substances that must be handled with impermeable protective equipment etc. based on special chemical regulations. (Article 594-2 Paragraph 1 of Ordinance on ISH)**

None of the components are listed.

#### Carcinogens based on Article 577-2 of the Ordinance on ISH

None of the components are listed.

#### Mutagen

None of the components are listed.

**Corrosive liquid** Not listed

**ISHL Enforcement Order Appendix 1 - Dangerous Substances** Not applicable.

**Harmful Substances Subject to Obtaining Permission for Manufacturing** Not listed

**Harmful Substances, Prohibited for Manufacturing** Not listed

### Chemical Substances Control Law (CSCL)

None of the components are listed.

#### **Poisonous and Deleterious Substances**

None of the components are listed.

#### **Pollutant Release and Transfer Registers (PRTR)**

None of the components are listed.

**JSOH Carcinogen** Not listed

**Law concerning prevention of pollution of the ocean** Not available.

**Road law** Not available.

**List of Specially Controlled Industrial Waste** Not listed

#### **International regulations**

##### **Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

##### **Montreal Protocol**

Not listed.

##### **Stockholm Convention on Persistent Organic Pollutants**

Not listed.

##### **Rotterdam Convention on Prior Informed Consent (PIC)**

Not listed.

##### **UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

#### **International lists**

##### **National inventory**

<b>Japan</b>	<b>Japan inventory (CSCL):</b> All components are listed or exempted. <b>Japan inventory (ISHL):</b> Not determined.
<b>United States</b>	All components are active or exempted.
<b>Canada inventory</b>	All components are listed or exempted.
<b>China</b>	All components are listed or exempted.

## 16. Other information

#### **History**

<b>Date of printing</b>	11/20/2025
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<b>Version</b>	1.01
	sds_author@cytiva.com
	ATE = Acute Toxicity Estimate
	BCF = Bioconcentration Factor
	GHS = Globally Harmonized System of Classification and Labelling of Chemicals
	IATA = International Air Transport Association
	IBC = Intermediate Bulk Container
	IMDG = International Maritime Dangerous Goods
	LogPow = logarithm of the octanol/water partition coefficient
	MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
	N/A = Not available
	UN = United Nations

#### **Procedure used to derive the classification**

Classification	Justification
EYE IRRITATION - Category 2A	Expert judgment
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Expert judgment

**References** Not available.

 Indicates information that has changed from previously issued version.

**Notice to reader**

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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