

Material Safety Data Sheet
According to OSHA and ANSI

Printing date 06/02/2011

Reviewed on 01/19/2007

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Citric acid**Stock number:** A10395, L04238**CAS Number:**

77-92-9

EINECS Number:

201-069-1

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660.

After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS05 Corrosion

H318 Causes serious eye damage.



GHS07

H315 Causes skin irritation.

H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Irritant

R37/38-41: Irritating to respiratory system and skin. Risk of serious damage to eyes.

Label elements**Labelling according to EU guidelines:****Code letter and hazard designation of product:**

Xi Irritant

Risk phrases:

37/38 Irritating to respiratory system and skin.

41 Risk of serious damage to eyes.

Safety phrases:

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

37/39 Wear suitable gloves and eye/face protection.

Hazard description:**WHMIS classification**

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Classification system

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HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

| | |
|------------|---|
| HEALTH | 1 |
| FIRE | 1 |
| REACTIVITY | 1 |

Health (acute effects) = 1

Flammability = 1

Reactivity = 1

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****(CAS#) Description:**

Citric acid (CAS# 77-92-9): 100%

Identification number(s):

EINECS Number: 201-069-1

4 First aid measures**Description of first aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.**5 Firefighting measures****Extinguishing media****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up: Pick up mechanically.**Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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7 Handling and storage**Handling****Precautions for safe handling**

Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

Information about protection against explosions and fires: Keep ignition sources away.

Conditions for safe storage, including any incompatibilities**Storage**

Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Store away from oxidizing agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls/personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace: Not required.
Additional information: No data

Exposure controls**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties**Information on basic physical and chemical properties****General Information****Appearance:**

| | |
|-------------------------|-----------------|
| Form: | Crystalline |
| Color: | White |
| Odor: | Odorless |
| Odour threshold: | Not determined. |

| | |
|------------------|-----------------|
| pH-value: | Not applicable. |
|------------------|-----------------|

Change in condition

| | |
|---|----------------|
| Melting point/Melting range: | 153°C (307 °F) |
| Boiling point/Boiling range: | Not determined |
| Sublimation temperature / start: | Not determined |

| | |
|---------------------|----------------|
| Flash point: | Not applicable |
|---------------------|----------------|

| | |
|--------------------------------------|-----------------|
| Flammability (solid, gaseous) | Not determined. |
|--------------------------------------|-----------------|

| | |
|------------------------------|----------------|
| Ignition temperature: | Not determined |
|------------------------------|----------------|

| | |
|-----------------------------------|----------------|
| Decomposition temperature: | Not determined |
|-----------------------------------|----------------|

| | |
|-----------------------|-----------------|
| Auto igniting: | Not determined. |
|-----------------------|-----------------|

| | |
|-----------------------------|---|
| Danger of explosion: | Product does not present an explosion hazard. |
|-----------------------------|---|

| | |
|--------------------------|----------------|
| Explosion limits: | |
| Lower: | Not determined |

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| | |
|---|--|
| Upper: | Not determined |
| Vapor pressure: | Not applicable. |
| Density at 20°C (68 °F): | 1.665 g/cm ³ (13.894 lbs/gal) |
| Relative density | Not determined. |
| Vapour density | Not applicable. |
| Evaporation rate | Not applicable. |
| Solubility in / Miscibility with Water: | Soluble |
| Segregation coefficient (n-octanol/water): | Not determined. |
| Viscosity: | |
| dynamic: | Not applicable. |
| kinematic: | Not applicable. |
| Other information | No further relevant information available. |

10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions Reacts with strong oxidizing agents**Incompatible materials:**

Oxidizing agents

Bases

Water/moisture

Hazardous decomposition products: Carbon monoxide and carbon dioxide**11 Toxicological information****Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**

| | | |
|--------------------|--------|---------------------|
| Oral | LD50 | 5040 mg/kg (mouse) |
| | | 3000 mg/kg (rat) |
| Irritation of skin | LDLo | 7 gm/kg (rabbit) |
| | mild | 500 mg/24H (rabbit) |
| Irritation of eyes | severe | 750 µg/24H (rabbit) |

Primary irritant effect:**on the skin:** Irritant to skin and mucous membranes.**on the eye:**

Strong irritant with the danger of severe eye injury.

Irritating effect.

Sensitization: No sensitizing effects known.**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Lungs, Thorax, or Respiration - other changes.

Lungs, Thorax, or Respiration - cyanosis.

Gastrointestinal - changes in structure or function of salivary glands.

Musculoskeletal - other changes.

Behavioral - convulsions or effect on seizure threshold.

Behavioral - tremor.

Behavioral - muscle contraction or spasticity.

Subacute to chronic toxicity:

Citric acid and its salts may cause gastrointestinal disturbances if ingested in very large doses. Vomiting and diarrhea may result. Ingestion may also damage the tooth enamel. Chronic skin contact may cause dermatitis.

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Additional toxicological information:

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To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information**Toxicity**

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

13 Disposal considerations**Waste treatment methods**

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

Not a hazardous material for transportation.

DOT regulations:

Hazard class: None

Land transport ADR/RID (cross-border)

ADR/RID class: None

Maritime transport IMDG:

IMDG Class: None

Marine pollutant: No

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: None

Special precautions for user Not applicable.

Transport/Additional information: Not dangerous according to the above specifications.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Product related hazard informations:**Hazard symbols:**

Xi Irritant

Risk phrases:

37/38 Irritating to respiratory system and skin.

41 Risk of serious damage to eyes.

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Safety phrases:

- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 37/39 Wear suitable gloves and eye/face protection.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:

Zachariah C. Holt

Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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