



SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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PRODUCT NAME : **CITRIC ACID**

SECTION 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

Potential Acute Health Effects:

Hazardous in case of eye contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer).

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS #	% by Weight
Citric acid	77-92-9	100



Toxicological Data on Ingredients: Citric acid: ORAL (LD50): Acute: 5040 mg/kg [Mouse]. 3000 mg/kg [Rat]

SECTION 4 - FIRST AID MEASURES

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean before reuse. Get medical attention.

Serious Skin Contact:

Wash with disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 1010°C (1850°F)

Flash Points: Not available.

Flammable Limits: LOWER: 0.28 Kg/M3 (Dust) UPPER: 2.29 Kg/M3 (Dust)

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: As with most organic solids, fire is possible at elevated temperatures

**Special Remarks on Explosion Hazards:**

Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

SECTION 6 - ACCIDENTAL RELEASE MEASURES**Small Spill:**

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

SECTION 7 - HANDLING AND STORAGE**Precautions:**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Safety glasses. Lab coat. Gloves (impervious). Dust respirator. Be sure to use an approved/certified respirator or equivalent. The dust respirator should be used for conditions where exposure has exceeded recommended exposure limits, dust is apparent, and engineering controls (adequate ventilation) are not feasible.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to



avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

No exposure guidelines have been established. ACGIH, NIOSH and OSHA have not developed exposure limits for this product. The exposure limits given below are for particulates not otherwise classified: ACGIH: 10 mg/m³ TWA (Total Inhalable fraction); 3 mg/m³ TWA (Respirable fraction) OSHA: 15 mg/m³ TWA (Total dust); 5 mg/m³ TWA (Respirable Fraction)

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance: Solid. (crystalline powder)

Odor: Odorless

Taste: Acidic, Strong

Molecular Weight: 192.13 g/mol

Color: Not Available

pH (1% soln/water): Not Available

Boiling Point: Decomposes

Melting Point: 153 °C

Critical Temperature: Not Available

Specific Gravity: 1.665

Vapor Pressure: Not applicable.

Vapor Density: Not Available.

Volatility: Not Available.

Odor Threshold: Not Available.

Water/Oil Dist. Coeff.: Citric acid is more soluble in water

Ionicity (in Water): Not Available

Dispersion Properties: Not Available

Solubility: Soluble in cold water, hot water

SECTION 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials



Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, metals, alkalis.

Corrosivity:

Corrosive in presence of aluminum, of zinc, of copper. Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Incompatible with oxidizing agents, potassium tartrate, alkali, alkaline earth carbonates and bicarbonates, acetates, and sulfides, metal nitrates

Special Remarks on Corrosivity: Will corrode copper, zinc, aluminum and their alloys.

Polymerization: Will not occur

SECTION 11 - TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 3000 mg/kg [Rat].

Chronic Effects on Humans: May cause damage to the following organs: teeth.

Other Toxic Effects on Humans:

Hazardous in case of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion.

Special Remarks on Toxicity to Animals: LDL[Rabbit] - Route: oral; Dose: 7000mg/kg

Special Remarks on Chronic Effects on Humans: Not available.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations

SECTION 14 - TRANSPORTATION INFORMATION

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.



SECTION 15 - REGULATORY INFORMATION

Federal and State Regulations: TSCA 8(b) inventory: Citric acid

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS E: Corrosive solid.

DSCL (EEC):

R36/37/38- Irritating to eyes, respiratory system and skin. 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.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: e

Protective Equipment:

Gloves (impervious). Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

SECTION 16 - OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy; reliability; or completeness. It is the user's responsibility to satisfy themselves as to the suitability and completeness

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Customers are responsible for compliance with local, state, and federal regulations that may be pertinent in the storage, application, and disposal of this product.