



# MATERIAL SAFETY DATA SHEET

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Citric Acid, Anhydrous

**Manufacturer Name:**

Cargill, Inc.  
1 Cargill Drive  
Eddyville, Iowa 52553  
USA

**Emergency Telephone:**

1-800-424-9300

**Non-emergency Telephone:**

1-641-969-4511

**Intended Use:** Food additive

## 2 HAZARDS IDENTIFICATION

**Emergency Overview**

**Physical State:** Solid (granules)

**Color:** White

**Odor:** No data available.

**WARNING!**

Causes eye and respiratory tract irritation. Causes mild skin irritation. Danger of adverse health effects by prolonged exposure.

May form combustible dust concentrations in air (during processing).

**Potential Health Effects**

**Inhalation:** Causes respiratory tract irritation.

**Eye Contact:** Causes eye irritation. Exposed individuals may experience eye tearing, redness, and discomfort.

**Skin Contact:** Causes mild skin irritation.

**Ingestion:** None known.

**Chronic Health Effects:** Erosion of exposed teeth.

**Target Organ(s):** | Respiratory system | Eye | Lung | Teeth.

**OSHA Regulatory Status:** This product is hazardous according to OSHA 29CFR 1910.1200.

### 3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration*
†Citric acid	77-92-9	100%

\* All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

† This chemical is hazardous according to OSHA/WHMIS criteria.

### 4 FIRST AID MEASURES

**Inhalation:** Move to fresh air. Get medical attention if symptoms persist.

**Eye Contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

**Skin Contact:** Wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.

**Ingestion:** No adverse effects due to ingestion are expected.

### 5 FIRE-FIGHTING MEASURES

**Extinguishing Media:** Extinguish with foam, carbon dioxide, dry powder or water fog.

**Unsuitable Extinguishing Media:** Not applicable.

**Special Fire Fighting Procedures:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Unusual Fire & Explosion Hazards:** Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**Hazardous Combustion Products:** Carbon Oxides

### 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** See Section 8 of the MSDS for Personal Protective Equipment.

**Spill Cleanup Methods:** Sweep up spilled substance and remove to safe place. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used.

### 7 HANDLING AND STORAGE

**Handling:** Avoid breathing material. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Minimize dust generation and accumulation.

**Storage:** Keep container tightly closed and dry. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Store away from incompatible materials.

**8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Exposure Limits:** No exposure limits noted for ingredient(s).

**Engineering Controls:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

**Eye Protection:** Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.

**Hand Protection:** It is a good industrial hygiene practice to minimize skin contact.

**Skin Protection:** Apron and long sleeves are recommended.

**Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**Environmental Exposure Controls:** Environmental manager must be informed of all major spillages.

**9 PHYSICAL AND CHEMICAL PROPERTIES**

**Color:** White

**Odor:** No data available.

**Odor Threshold:** No data available.

**Physical State:** Solid (granules)

**pH:** 2.2

**Melting Point:** 153°C (307°F)

**Freezing Point:** Not applicable.

**Boiling Point:** No data available.

**Flash Point:** Not applicable.

**Evaporation Rate:** Not applicable.

**Flammability Limit - Upper (%):** Not applicable.

**Flammability Limit - Lower (%):** Not applicable.

**Vapor Pressure:** Not applicable.

**Vapor Density (Air=1):** Not applicable.

**Specific Gravity:** 1.5 - 1.7

**Solubility in Water:** Soluble 60 g/100ml @20°C

**Solubility (Other):** No data available.

**Partition Coefficient (n-Octanol/water):** -1.72

**Autoignition Temperature:** 101°C (214°F)

**Decomposition Temperature:** No data available.

**Viscosity:** Not applicable.

**Explosive Properties:** No data available

## 10 STABILITY AND REACTIVITY

**Stability:** Stable.

**Conditions to Avoid:** Minimize dust generation and accumulation.

**Incompatible Materials:** Strong bases. Alkali metals. Metal nitrates. Oxides of sulfur. Potassium tartrate. Will corrode copper, zinc, aluminum, and their alloys.

**Hazardous Decomposition Products:** No data available. None known.

## 11 TOXICOLOGICAL INFORMATION

**Listed Carcinogens:** None.

### Product Information

**Acute Toxicity:**

**Test Results:** Oral LD50 (Rat): 3 g/kg

**Other Acute:** Causes eye and respiratory tract irritation. Causes mild skin irritation.

**Chronic Toxicity:** Erosion of exposed teeth.

## 12 ECOLOGICAL INFORMATION

**Ecotoxicity:** Large amounts of the product may affect the acidity (pH-factor) in water with possible risk of harmful effects to aquatic organisms.

### Product

EC50 (72 hour(s), Daphnia magna): 120 mg/l

LC50 (96 hour(s), Bluegill Sunfish): 1516 mg/l

**Mobility:** No data available.

**Persistence and Degradability:** The product is biodegradable.

**Bioaccumulation Potential:** The product is not bioaccumulating.

**13 DISPOSAL CONSIDERATIONS**

**General Information:** Dispose of waste and residues in accordance with local authority requirements.

**Disposal Methods:** No specific disposal method required.

**Container:** Since emptied containers retain product residue, follow label warnings even after container is emptied.

**14 TRANSPORT INFORMATION**

**DOT** Not regulated.

**TDG** Not regulated.

**IATA** Not regulated.

**IMDG** Not regulated.

**15 REGULATORY INFORMATION**

**Canadian Controlled Products Regulations:** This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

**WHMIS Classification:** D2B, E

**Mexican Dangerous Statement:** This product is dangerous according to Mexican regulations.

**Inventory Status**

**This product or all components are listed or exempt from listing on the following inventory:** EINECS, DSL, TSCA

**US Regulations**

**CERCLA Hazardous Substance List (40 CFR 302.4):** Not regulated.

**SARA Title III**

**Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A):** Not regulated.

**Section 311/312 (40 CFR 370):**

Acute (Immediate)     Chronic (Delayed)     Fire     Reactive     Pressure Generating

**Section 313 Toxic Release Inventory (40 CFR 372):** Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**  
Not regulated.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):** Not regulated.

**Drug Enforcement Act:** Not regulated.

**TSCA**

**TSCA Section 4(a) Final Test Rules & Testing Consent Orders:** Not regulated.

**TSCA Section 5(a)(2) Final Significant New Use Rules (SNURs) (40CFR 721, Subpt. E):** Not regulated.

**TSCA Section 5(e) PMN-Substance Consent Orders:** Not regulated.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D):** Not regulated.

**State Regulations**

**California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):** Not regulated.

**Massachusetts Right-To-Know List:** Not regulated.

**Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)):** Not regulated.

**Minnesota Hazardous Substances List:** Not regulated.

**New Jersey Right-To-Know List:** Not regulated.

**Pennsylvania Right-To-Know List:** Not regulated.

**Rhode Island Right-To-Know List:** Not regulated.

<b>16</b>	<b>OTHER INFORMATION</b>
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**HAZARD RATINGS**

	<b>Health Hazard</b>	<b>Fire Hazard</b>	<b>Instability</b>	<b>Special Hazard</b>
<b>NFPA</b>	2	1	0	NONE

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

NFPA Label colored diamond code: Blue - Health; Red - Flammability; Yellow - Instability; White - Special Hazards

	<b>Health Hazard</b>	<b>Flammability</b>	<b>Physical Hazard</b>	<b>Personal Protection</b>
<b>HMIS</b>	2*	1	0	--

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe \*- Chronic Health Effect

HMIS Label colored bar code: Blue - Health; Red - Flammability; Orange - Physical Hazards; White - Special

**Updated:** 1/2/13

**Supersedes Date:** 1/27/12

**SDS No.:** 1011539

**Disclaimer:** To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for completeness of the information contained herein. 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.