Citric Acid Anhydrous
(CAA)

DATE OF ISSUE: 2016-09-21

Section 1 - Chemical Product and Company Identification

MSDS NAME: CITRIC ACID ANHYDROUS
SYNONYMS: 2-HYDROXY-1,2,3-PROPANETRIOIC ACID, CITRIC ACID
CAS NO.: 77-92-9
MOLECULAR WEIGHT: 192.12
CHEMICAL FORMULA: H3C6H5O7

COMPANY IDENTIFICATION:
LUKEM (NANJING) CO., LTD. 251 HEYAN ROAD, NANJING 210028, CHINA

For information, call: 86-25-85552709

Emergency Number: 86-25-85552309

International chemical tracking: 00386 1 244 3292

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Ingredient</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>77-92-9</td>
<td>Citric Acid Anhydrous</td>
<td>99-100</td>
<td>No</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

Emergency Overview:
Odorless, colorless translucent crystals with strong acidic taste. Citric acid is a skin and mucousmembrane irritant and
eye irritant. It may cause allergic reactions in some individuals.

**Most Important Hazard:** Irritating to eyes.

**Potential Health Effects:**

**Inhalation:** May cause mucous membrane irritation with sore throat, coughing and shortness of breath.

**Eye Contact:** May cause irritation with redness, pain, possible eye burns, conjunctivitis, ulceration and permanent cloudiness.

**Skin Contact:** May cause irritation with swelling, redness and pain.

**Chronic:** Repeated or prolonged skin contact may result in dermatitis. Prolonged or repeated eye contact may result in conjunctivitis. Long term oral overexposure may cause damage to tooth enamel.

### Section 4 - First Aid Measures

**Ingestion:** Drink plenty of water. Do not induce vomiting.

**Skin Contact:** Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

**Eye Contact:** Rinse immediately with plenty of water and seek medical advice.

**Protection of first-aiders:** Use personal protective equipment.

### Section 5 - Fire Fighting Measures

**Flash point:** not applicable

**Flammable limits:** Lower 8 gm/FT3 Upper 65 gm/FT3

**Autoigintion temperature:** 1010 centi degree

**Suitable extinguishing media:** water, water spray, dry powder, foam, carbon dioxide, remove containers if possible. Cool container exposed to fire with water spray.

**Extinguishing media which must not be used for safety reasons:** None

**Hazardous decomposition products:** Carbon Oxides

**Special Protective equipment for firefighters:** Use personal protective equipment including self-contained breathing apparatus when fighting fire in enclosed area.

**Specific methods:** Standard procedure for chemical fires.

### Section 6 - Accidental Release Measures

**General:** Wear dust respirator and protective clothing. Keep unnecessary personnel away. Sweep or vacuum into closed
containers for disposal. Dispose in compliance with local, state, and federal regulations.

Section 7 - Handling and Storage

**Handling:** Avoid contact with eyes and prolonged contact with skin. Avoid breathing large amounts of dust. Wash away splashes and spillages with water.

**Storage Temperature:** Ambient storage pressure: Atmospheric

**General:** Store in cool dry area away from incompatible materials and protected from moisture. Protect containers from damage.

**Incompatible products:** Incompatible with strong bases and oxidizing agents

**Empty containers:** Empty containers retain product residue and vapors. Observe all label precautions even after container is emptied. Do not reuse unless thoroughly cleaned.

Section 8 - Exposure Controls, Personal Protection

**Engineering Measures:** Provide general dilute ventilation.

Exposure limit(s): None established for this ingredient, use OSHA PEL, ACGIH TLV for Nuisance dusts of 5mg/m3.

**Personal Protection equipment**

**Personal Respirators (NIOSH Approved):** dust respirator

**Skin and body Protection:** Lightweight protective clothing

**Eye Protection:** Safety glasses

Section 9 - Physical and Chemical Properties

**Appearance:** crystalline powder. Colorless / White

**Odor:** Odorless.

**Solubility:** 576g/kg (water, 25 centi degree), 383g/l (alcohol, 25 centi degree)

**Density:** 650-950g/cm3 (bulk density), 1.665g/cm3 (relative density)

**pH:** 1.8 (5% solution)

**Coefficient of water / oil distrib Log P (oct):** -1.72 (measured)

**Log P (oct):** -1.25 to -1.80 (calculated)

**Boiling Point:** 175 centi degree

**Evaporation rate:** essentially 0

**Vapor Density (Air=1):** not applicable
Vapor Pressure (mm Hg): 3.70 E-009 mm Hg@25 centi degree

Section 10 - Stability and Reactivity

**Stability:** Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:** Granular carbon oxide.

**Hazardous Polymerization:** Will not occur.

**Materials to avoid:** Incompatible with strong bases and oxidizing agents.

**Conditions to Avoid:** Avoid dust formation and moisture. Take precautionary measures against static discharges.

Section 11 - Toxicological Information

**Acute toxicity:**
- LD 50/ p.o./rat: 11,700 mg/kg
- LD 50/ i.p./rat: 885 mg/kg
- LD 50/ p.o./mouse: 5,040 mg/kg
- LD 50/ l.p./mouse: 961 mg/kg

**Local effects:** Irritating to eyes and skin

**Chronic toxicity:** None

**Human experience:** Health injuries are not known or expected under normal use.

Section 12 - Ecological Information

**Mobility:** Completely soluble

**Persistence and degradability**
- **Chemical oxygen demand:** (COD) = 728 mg O2/g
- **Biological oxygen demand/ 5 days:** (BOD) = 528 mg O2/g

**Readily biodegradable:** 98% after 2 days

**Bioaccumulation:** None

**Ecotoxicity effects:**
- Toxicity to fish (LC 50/96H / Goldfish) = 440-706 mg/l
- Toxicity to bacteria (EC0) = > 10,000 mg/l

Section 13 - Disposal Considerations
**Waste from residues / unused products:** Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state enviromental agency for specific rules).

### Section 14 - Transport Information

<table>
<thead>
<tr>
<th><strong>Shipping Name:</strong></th>
<th>Citric Acid Anhydrous</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hazard Class:</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>UN Number:</strong></td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Packing Group:</strong></td>
<td>n/a</td>
</tr>
</tbody>
</table>

Not classified as dangerous according to TDG (Transportation of Dangerous Goods) and USD DOT (Department of Transportation)

### Section 15 - Regulatory Information

Citric Acid is generally regarded as safe (GRAS) by USA FDA, 21 CFR 184.1033
Meets the criteria for hazardous material as defined by OSHA hazard Communication Standard 21 CFR 1910.1200.

The material is listed on the TSCA inventory list.
CERCLA (Comprehensive Response Compensation, and Liability act) : Not hazardous
SARA Title III (Superfund Amendments and Reauthorization Bill): Not considered hazardous

Canadian DSL (Domestic Substance List) WHMIS – CLASS E
IDL – Citric Acid (CAS No. 77-92-9) is listed on the ingredient disclosure list
DSL – Citric Acid (Cas No. 77-92-9) is listed on the Domestic Substance List

### Section 16 - Additional Information

**MSDS Creation Date:** 01/06/2008

**Revision #5 Date:** 01/06/2009

**Disclaimer:**
The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or
any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we has been advised of the possibility of such damages.