

MATERIAL SAFETY DATA SHEET

JUNGBUNZLAUER INC.

Product: Citric Acid Anhydrous

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Revision date 6/17/2005

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMMERCIAL PRODUCT NAME:

Citric Acid Anhydrous

COMPANY/SUPPLIER:

Jungbunzlauer Inc.

7 Wells Avenue, Suite 15

Newton Centre, Massachusetts, USA 02459

Phone

1 617 969 0900 8:30 AM to 5:00 PM M-F

Fax

1 617 964 2921

24 Hour Emergency Phone Number:

CHEMTREC 1-800-424-9300

PRODUCT USE: Widely used acidulant for flavoring, beverages, food, and as a basic chemical.

2. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Name Of The Material:

2-hydroxy-1,2,3-propane tricarboxylic acid

Chemical Formula

C₆H₈O₇

Chemical Family

Organic Acid

SYNONYMS:

Citric Acid, Beta-hydroxytricarboxylic acid.

COMPOSITION:

CAS Reg. No.

%

Citric Acid Anhydrous

77-92-9

100

EC-No.

201-069-1

European Food Additive

E330

HAZARDOUS IMPURITIES

None

3. HAZARDS IDENTIFICATION

Emergency Overview:

Odorless, colorless translucent crystals with strong acidic taste. Citric acid is a skin and mucous membrane irritant and an eye irritant.

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.

Ingestion:

May cause acute gastrointestinal irritation with abdominal 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.

Carcinogen status:

None

4. FIRST AID MEASURES

General advice

Consult a physician.

Major effects of exposure:

Irritating to eyes and skin.

Inhalation

Move to fresh air.

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.

Ingestion

Drink plenty of water. Do not induce vomiting.

Consult a physician if necessary

Protection of first-aiders

Use personal protective equipment.

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5. FIRE FIGHTING MEASURES

FLASH POINT	Not Applicable
FLAMMABLE LIMITS	Lower 8 gm/FT ³ Upper 65 gm/FT ³
Autoignition temperature:	345 °C / 653 °F
Suitable extinguishing media	water, water spray, dry powder, foam , carbon dioxide (CO ₂), 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.

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.
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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. 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.

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 5 mg/ m ³ .
Personal protection equipment	
Respiratory protection	NIOSH approved dust respirator
Hand protection	Gloves
Eye Protection	Safety glasses
Skin and body protection	Lightweight protective clothing
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Form	powder
Color	colorless / white
Odor	none
pH (5 % solution)	1.8
Vapor pressure	not volatile
Vapor density	not applicable
Boiling point	not established
Evaporation rate	essentially 0
Coefficient of water/oil distribution	Log P (oct) -1.72 (measured) Log P (oct) -1.25 to -1.80 (calculated)
Melting point/range	153 °C
Decomposition temperature	> 170 °C/338°F
Bulk density	650 - 950 kg/m ³
Solubility, Water solubility (25 °C)	576 g/kg
Solubility Ethanol (25°C)	383 g/l

10. STABILITY AND REACTIVITY

Stability	Stable at normal conditions
Conditions to avoid	Avoid dust formation. Take precautionary measures against static discharges.
Materials to avoid	Incompatible with strong bases and oxidizing agents.
Hazardous polymerization	Does not occur.
Corrosion	May corrode metals. 316 Stainless steel recommended material for handling.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	LD50/p.o./rat	11,700 mg/kg
	LD50/i.p./rat	885 mg/kg
	LD50/p.o./mouse	5,040 mg/kg
	LD50/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.	

12. ECOLOGICAL INFORMATION

Mobility	Completely soluble
Persistence and degradability	
Chemical oxygen demand	(COD) = 728 mg O ₂ /g
Biological oxygen demand/5 days	(BOD) = 528 mg O ₂ /g
Readily biodegradable	98% after 2 days
Bioaccumulation	None
Ecotoxicity effects	Toxicity to fish (LC50/96h/goldfish) = 440-706 mg/l Toxicity to bacteria(EC0) = >10,000 mg/l

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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 environmental agency for specific rules).

14. TRANSPORT INFORMATION

Not Regulated

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

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

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

To the best of our knowledge, Jungbunzlauer Citric Acid Anhydrous does not contain any contaminants or bi-products known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act.

16. OTHER INFORMATION

HMIS* Rating Health = 1, Fire = 0, Reactivity = 0

0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

*Hazardous Materials Identification System of the National Paint and Coating Association.

MSDS Status: Revised 6/17/2005 by Technical Service Department of Jungbunzlauer Inc. to make minor changes to section 3.

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