PRODUCT NAME:	CITRIC ACID ANHYDROUS
MSDS NUMBERS:	10070, 10200
DATE ISSUED:	01/01/2009
SUPERSEDES:	05/10/2005
ISSUED BY:	006886

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MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product name CITRIC ACID ANHYDROUS

Distributor:
UNIVAR USA, INC.
17425 NE Union Hill Road
Redmond WA 98052
425-889-3400

24 h Emergency telephone number	CHEMTREC 1 800 424 9300
Product Information	Additive for foods and pharmaceuticals

2. COMPOSITION/INFORMATION ON INGREDIENTS

Citric acid anhydrous

Chemical name of the substance	C6H807
Chemical Name	2-hydroxypropane-1,2,3-tricarboxylic acid anhydrous
Synonyms	Citric Acid
EC-No.	201-069-1
CAS-No.	77-92-9
Hazardous impurities	None.

3. HAZARDS IDENTIFICATION

Most important hazards: Irritating to eyes.
May cause skin irritation and respiratory tract irritation.

4. FIRST AID MEASURES

General advice: Consult a physician.

Major effects of exposure: Irritating to eyes.

May cause skin irritation in susceptible persons.

Inhalation: Move to fresh air.

Skin contact: Wash off immediately with soap and plenty of water.
If skin irritation persists, seek medical attention.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If eye irritation persists, seek medical attention.

Ingestion: Drink plenty of water. Do not induce vomiting. Seek medical

attention.

Protection of first-aiders: Use personal protective equipment.

5. FIRE-FIGHTING MEASURES

Flashpoint	Not available
Lower flammable limits	8% at 65 deg C / 149 deg F
Upper flammable limits	Not available
Auto-ignition temperature	345 deg C / 653 deg F
Suitable extinguishing media	water, water spray, dry powder, foam, carbon dioxide (CO2).

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.

Specific methods: Standard procedure for chemical fires.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment. Avoid contact with skin and eyes.

Environmental precautions: No special environmental precautions required.

Methods for cleaning up: Sweep up and shovel. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling
Technical measures/Precautions:
Avoid dust formation.
Take precautionary measures against static discharges.

Safe handling advice: Use personal protective equipment.

Storage
Technical measures/Storage conditions: Keep tightly closed in a dry and cool place.

Incompatible products: Strong oxidizing agents, strong bases.

Packaging material: Polyethylene coated paper bags or polyethylene/propylene big bags.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure: Ensure adequate ventilation, especially in confined areas.

Exposure limit(s): No special precautions required.

Personal protective equipment

Respiratory protection	Effective dust mask
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Powder / crystalline
Color	White / colorless
Odor	None
Odor Threshold	N.A.
pH Solution (5 %) (25 deg C/77 deg F)	1.80
Vapor pressure	Practically zero at room temperatures
Vapor density	N.A.
Melting point/range	153 deg C / 307 deg F
Boiling point	N.A.
Decomposition temperature	> 170 deg C / > 338 deg F
Auto-ignition temperature	345 deg C / 653 deg F
Explosive properties, risk of explosion:	Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Relative density	1.665 g/cm3
Bulk density granular	850 - 950 kg/m3
powder	550 - 650 kg/m3
Solubility	
Water solubility (25 deg C/77 deg F)	61.8 % (w/w)
Solubility in other solvents	
Ethanol (25 deg C/77 deg F)	38.3 % (w/w)
Coefficient of water / oil distribution	Log P (oct) - 1.72 (measured) Log P (oct) 1.25 to 1.80 (calculated)

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 decomposition products: No decomposition if stored normally.
Thermal decomposition can lead to release of irritating gases and vapors.

Corrosion: May corrode metals. 316 Stainless steel recommended material for handling.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	LD50/p.o./rat = 11.700 mg/kg (1)
	LD50/i.p./rat = 883 mg/kg (2)
	LD50/p.o./mouse = 5.040 mg/kg (1)
	LD50/i.v./mouse = 42 mg/kg (17
	LD50/i.p./mouse = 961 mg/kg (2)

Local effects:
Irritating to eyes.
May cause skin irritation and respiratory tract irritation.

Chronic toxicity: None.

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

Carcinogenic Characteristic: This product does not contain any substances

that are considered by ACGIH, OSHA or NTP to be "probable" or "suspected" human carcinogens.

Reproductive toxicity: No data available

Teratogenicity: No data available

Mutagenic Characteristic: negative)

References :
(1) H.T. Yokotani et al, J. Takeda Res. Lab 30 (1) 25 (1971)
(2) C.M. Gruber & W.A. Halbeisen, J. Pharmac. Exp. Ther. 94 65 (1948)
(3) FDA 223-75-2004 (1977)
(4) Ames Test, Litton Bionetics Inc. 1975, Contract No. FDA 71-268

12. ECOLOGICAL INFORMATION

Mobility: completely soluble

Persistence / degradability

Chemical oxygen demand (COD) =	750	50 mg 02 /g
Biochemical oxygen demand within 5 days (BOD5) =	625	50 mg 02 /g

DIN 38412 Part 25 (DIN EN ISO 9888): Readily biodegradable (98 % after 2 days)*

Ecological toxicity

DIN 38412 Part 15 (DIN EN ISO 7346)	Toxicity to fish	440 - 706 mg/L
DIN 38412 Part 5	Toxicity to bacteria	>10.000 mg/L
Bioaccumulation	None.	

* Reference: P. Creach: C. R. Acad. Sci. Paris 240 2551 (1955)

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products: Where possible recycling is preferred to disposal or incineration. Can be disposed in landfill or incinerated, when in compliance with local regulations.

Contaminated packaging: Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORT INFORMATION

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

15. REGULATORY INFORMATION

WHMIS - Class E

IDL - Citric Acid (CAS-No. 77-92-9) is listed in the Ingredient Disclosure List

DSL - Citric Acid (CAS-No. 77-92-9) is listed in Domestic Substance List

HMIS - Health 1 ; Flammability 0 ; Reactivity 0

TSCA - Citric Acid (CAS-No. 77-92-9) is listed on the TSCA Inventory

TSCA 8(d) - Citric Acid (CAS-No.77-92-9) exempted from regulations

According to European Community Directive 67/548/EEC, as amended, the product

shall be labeled.

Symbol(s):	Xi - Irritant
Risk -phrase(s):	R36 - Irritating to eyes.
Safety -phrase(s)	S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

References:
ECAMA Internal Report 1998
Citric acid has irritancy equivalent to fumaric acid see Annex 1
Directive 67/548/EEC. Directive 67/548/EEC Annex 7, non toxic to the environment.

16. OTHER INFORMATION

USA FDA GRAS Status	Food Additive E 330
HMIS Letter E:	Wear personal protective equipment: Gloves; Safety Glasses, Dust Respirator

---------- FOR ADDITIONAL INFORMATION ----------
CONTACT: MSDS COORDINATOR UNIVAR USA INC.
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400
---------- NOTICE ----------

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