

Jungbunzlauer

MATERIAL SAFETY DATA SHEET

Product name **LIQUINAT® L50**
60 % Solution of Citric Acid Anhydrous

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

Product name	LIQUINAT® L50
Supplier	JUNGBUNZLAUER Canada 1555 Elm Street, Port Colborne, Ontario L3K 6V4 CANADA
Telephone	1 (905) 835 54 44
Telefax	1 (905) 835 00 61
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 (50 % aqueous solution)	
Chemical name of the substance	<u>C₆H₈O₇</u>	<u>H₂O</u>
Chemical Name	2-hydroxypropane-1,2,3- tricarboxylic acid anhydrous	Water
Synonyms	Citric Acid	Water
EC-No.	201-069-1	231-791-2
CAS-No.	77-92-9	7732-18-5
Hazardous impurities	None	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.

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5. FIRE-FIGHTING MEASURES

Flashpoint	Non flammable
Lower flammable limits	Not applicable
Upper flammable limits	Not applicable
Auto-ignition temperature	Not applicable
Suitable extinguishing media	water, water spray, dry powder, foam, carbon dioxide (CO ₂).
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	Typically, neutralize with lime or soda ash and flush away with plenty of water. After cleaning, flush away traces with water. Dispose of in compliance with Municipal, Provincial and Federal law.

7. HANDLING AND STORAGE

Handling	Avoid contact with eyes and prolonged contact with skin. Wash away splashes and spillages with water.
Technical measures/Precautions	No special technical protective measures required.
Safe handling advice	Use personal protective equipment. No special environmental precautions required.
Storage	Store in suitably unreactive tanks and containers such as 316 stainless steel or an appropriate polymer lined tank. Avoid aluminium, iron, mild steel as corrosive effects might be observed.
Incompatible products	Strong oxidizing agents, strong bases.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure	No special technical protective measures required.
Exposure limit(s)	None established.
Personal protective equipment	
Respiratory protection	Not required except in case of aerosol formation.
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	aqueous solution (approximately 50 %)
Colour	colourless or nearly colourless
Odour	odourless
Odour Threshold	Not applicable
pH Solution (25°C/77°F)	~ 1
Vapour pressure	No data available
Vapour density	No data available
Evaporation rate	No data available
Boiling point	> 100 °C / > 212 °F
Explosive properties, risk of explosion:	None
Relative density	1.24 g/cm ³
Solubility	completely miscible
Water solubility (25°C/77°F)	completely miscible
Coefficient of water / oil distribution	No data available

10. STABILITY AND REACTIVITY

Stability	Stable at normal conditions.
Conditions to avoid	Freezing.
Materials to avoid	Incompatible with strong bases and oxidizing agents corrodes. Corrodes base metals.
Hazardous decomposition products	No decomposition if stored normally. Thermal decomposition can lead to release of irritating gases and vapours.
Hazardous Polymerisation	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 ⁽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 ⁽¹⁾ 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 ⁽⁴⁾
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

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12. ECOLOGICAL INFORMATION

Mobility	completely soluble
Persistence / degradability	
Chemical oxygen demand (COD) =	750 ± 50 mg O ₂ /g
Biochemical oxygen demand within 5 days (BOD ₅) =	625 ± 50 mg O ₂ /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 Neutralisation prior to disposal is recommended. Any disposal practice must be in compliance with Municipal, Provincial and Federal laws and regulations (contact or state environmental agency for specific rules).

14. TRANSPORT INFORMATION

Regulated by Canadian TDG (Transportation of Dangerous Goods):

PROPER SHIPPING NAME:	Corrosive liquid, acidic, organic, n.o.s.
HAZARD CLASS OR DIVISION	8
UN/NA NUMBER	UN3265

No Information available US 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 labelled:
 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.

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16. OTHER INFORMATION

USA FDA GRAS Status

Food Additive E 330

HMIS Letter E:

Wear personal protective equipment: Gloves; Safety Glasses,
Dust Respirator

MSDS Status: Company Name changed 24th of March 2003

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.