MATERIAL SAFETY DATA SHEET

PRODUCT: pH LOWER LIQUID 600ML

Date of Issue: 26 OCT 2018 **Valid until:** 26 OCT 2023 **GHS** Format

1. IDENTIFICATION OF MATERIAL & SUPPLIER

Product Name: pH Lower Liquid for Hydroponics 600ml
Other names: Citric Acid Liquid
Manufacturer's code: MTO3105
Recommended use: an aqueous concentrated acidic solution for reducing the pH of Hydroponic solutions or water.

Manufacturer/Supplier Information:

Name: MANUTEC PTY LTD
Address: 30 Jonal drive, Cavan, South Australia 5094
Telephone No: +61-8-8260 2277 **Fax**: +61-8-8260 2399

Email: manutec@manutec.com.au

Emergency contact only: Poisons Information Centre (Australia) 131126

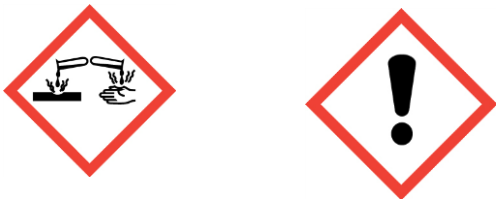
2. HAZARDS IDENTIFICATION

Poisons Schedule: None Scheduled

Hazard Classification: Hazardous according to the criteria of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Hazard Categories:
Serious Eye Damage/Irritation - Category 1
Skin Corrosion/Irritation - Category 3
Specific Target Organ Toxicity (Single Exposure) - Category 3

Pictograms:



Signal Word: DANGER

Hazard Statements:
H318 Causes serious eye damage.
H316 Causes mild skin irritation.
H335 May cause respiratory irritation.

Precautionary Statements:

Prevention	P280 Wear eye protection/face protection. P261 Avoid breathing mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area.
Response	P312 Call a POISON CENTER or doctor if you feel unwell. P305 + P351 + P338+ P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor. P332 + P313 If skin irritation occurs: Get medical advice/attention. P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
Storage	P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Disposal	P501 Dispose of contents/container in accordance with local / regional / national /international regulations.

National Transport Commission (Australia)

Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Entity	Formula	CAS Number	Proportion
Water	H2O	7732-18-5	50 - 60 %
Citric acid	C6H8O7	77-92-9	50%

4. FIRST AID MEASURES

If poisoning occurs, please contact immediately Poisons Information Centre (Australia) on 131126

Ingestion:	Rinse mouth with water. If swallowed, don't induce vomiting. Give a glass of water to drink, but never give anything by mouth to unconscious person. If vomiting occurs give additional water. Seek medical advice immediately.
Eye:	If in Eyes, Rinse cautiously with water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids.

	Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. Immediately call a Poison Centre or doctor/physician.
Skin:	Remove contaminated clothing. Wash affected part with soap and clean water. Any symptoms such as swelling, redness, blister or irritation occurs, seek immediate medical attention.
Inhaled:	Remove victim to fresh air. Remove contaminated clothing and make victim comfortable position. Seek medical help if victim still uncomfortable and develop any symptoms.
Aid Facilities:	Poisons Information Centers in each State capital city may provide additional assistance (Ph. 131126).
Advice to doctor:	No special advice, treat symptomatically.

5. FIRE FIGHTING MEASURES

General Measures: If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions: Non-combustible, however, following evaporation of water component, the residual material may burn if ignited.
Extinguishing media: Non-combustible, however, if material is involved in a fire, use dry chemical, Carbon dioxide, foam or water spray for extinction.
Fire and Explosion Hazard: Containers may explode when heated to extreme temperatures.
Hazardous Products of Combustion: Fire or heat will produce irritating, toxic, and/or corrosive gases, including: Carbon oxides.
Special Fire Fighting Instructions: Contain runoff from fire control or dilution water.
Personal Protective Equipment: Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapors or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure: Avoid accidents, clean up immediately. Ensure adequate ventilation. Do not touch or walk through spilled material - Slippery when spilt. Avoid breathing vapours and contact with eyes, skin and clothing.
Small spills: Ensure to wear appropriate protective gear (such as gloves/goggles) as appropriate and soak with a rag or paper towel or absorbent materials and dispose as general waste.
Large spills: Ensure to wear appropriate protective gear and collect in to properly Labelled containers. Avoid material entering in to drainage or waterways.
Advice or contact local council or environmental authority as appropriate.
See section 13 for disposal information.

7. HANDLING AND STORAGE

- Avoid Skin, eye contact, wear appropriate safety protection (masks/gloves/goggles) while handling.
- Store in a dry, cool and ventilated place away from Children, pets and exposure to direct sunlight. Also store away from any incompatible materials described in section 10 of this safety data sheet.
- When not in use and after use, ensure to keep the container sealed properly.
- If any spillage, follow appropriate action as described in section 6 of this data sheet.
- Store in original packaging as approved by the manufacturer

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures:
Proper Ventilation in place, particularly while handling larger volumes in Factory settings and use appropriate protective cloth, gloves and eye protection
Control of exposition limit:
Respiratory protection: Keep ventilated and use mask during handling large volumes
Hand protection: Rubber or plastic gloves
Eye protection: Safety glasses
Skin protection: Use adequate cloth

Personal Protection in Manufacturing/Packing area:
Wear overalls, safety glasses and impermeable gloves. Avoid generating dust. If dust exists wear appropriate dust mask meeting requirements of AS/NZS 1715 Standards. Always wash hands after handling and before eating, smoking or drinking. Wash contaminated clothing before storing or reuse

Hygienic and personal protection practices while handling the product
Keep the material/product away from food and drink, animal feed.
When using, don't eat, drink or smoke
Wash hands or affected area thoroughly prior to eating, drinking or smoking
Avoid contact with skin, eye and inhalation of any dust from the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Clear Liquid
Colour:	Colorless
Odour:	Characteristic
Melting Point:	Not applicable
Boiling Point:	Not applicable
pH:	1.20
Vapour Press kPa 025C:	Nil
Specific Gravity:	Not determined
Flashpoint (C):	Non flammable
Flammability Limits:	Non flammable
Solubility in water:	Completely miscible in water

10. STABILITY AND REACTIVITY

General Information	Product is a non-flammable liquid This material may slowly corrode mild steel/metal
Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid:	Exposure to heat, sources of ignition, and open flame
Materials to Avoid	Incompatible with alkalis, strong oxidizing agents, reducing agents and metal (mild steel).

Hazardous Decomposition Products: Fire or heat will produce irritating, toxic, and/or corrosive gases, including Carbon oxides.

Hazardous Polymerization

Hazardous Polymerization has not been reported.

11. TOXICOLOGICAL INFORMATION

In general when the product is used and handled safely and as per directions on the label and per safety data sheet instructions, no adverse effects are expected. However in case of mishandling or over ingestion of product, may result in symptoms of acute effects.

Acute toxicity: Low acute toxicity following oral exposure; Low acute toxicity following dermal exposure.

Skin corrosion/irritation: Causes mild skin irritation.

Eye damage/irritation: May cause serious eye damage. A severe eye irritant - Contamination of eyes can result in severe injury.

Respiratory/skin sensitization: No information available.

Germ cell mutagenicity: Not found to be mutagenic or genotoxic.

Carcinogenicity: No evidence of carcinogenicity.

Reproductive toxicity: No adverse effects on reproductive parameters or teratogenicity.

STOT - single exposure: May cause respiratory irritation. Inhalation of citric acid mists or aerosols may induce coughing and broncho-constriction in humans. Swallowing may result in irritation of the gastrointestinal tract.

Acute

Ingestion Acute toxicity (Oral):

- LD50, Rat: 3,000 mg/kg
- LD50, Mouse: 5,400 mg/kg [similar to OECD guideline 401].

Other Acute toxicity (Dermal):

- LD50, Rat: >2,000 mg/kg [OECD Guideline 402].

12. ECOLOGICAL INFORMATION

Eco toxicity	No data available
Mobility	Completely miscible in water.
Environmental Fate	Do NOT allow excessive product to reach waterways, drains and sewers**.**
Bioaccumulation Potential	Significant accumulation in organisms is not to be expected. - Bio concentration factor: 3.2 [Calculated].
Environmental Impact	No Data Available

13. DISPOSABLE CONSIDERATIONS

General Information: Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
Contaminated packaging: Uncleaned empties should be disposed of in the same manner as the contents.

14. TRANSPORT INFORMATION

Proper Shipping Name: Citric Acid Liquid

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15. REGULATORY INFORMATION

Constituents or materials used in this product are covered by Australian Inventory of Chemical Substances (AICS)

Poisons Schedule (Aust) Not scheduled

16. OTHER INFORMATION

The MSDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

STATEMENT OF DISCLAIM:
This Material Safety Data Sheet has been developed according to WHS Code of Practice Preparation of Safety Data Sheets for Hazardous Chemicals Guidelines and written in accordance with GHS format. All information is as accurate and up-to-date as possible. Since Manutec Pty Ltd cannot anticipate or control the conditions under which this information may be used, each user should review the information in the specific context of the intended application. Manutec Pty Ltd will not be responsible for damages of any nature resulting from use of or reliance upon this information.
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