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

1.1 Product identifiers

- **Product name**: Citric acid
- **Product Number**: 52-7433
- **Brand**: Rapid
- **CAS-No.**: 77-92-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

- **Identified uses**: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

- **Company**: Rapid Electronics, Severalls Lane, Colchester, Essex, CO4 5JS, United Kingdom
- **Telephone**: +44 (0) 1206 751166
- **Fax**: +44 (0) 1206 751188
- **E-mail address**: sales@rapidelec.co.uk

1.4 Emergency telephone number

- **Emergency Phone #**: +44 (0) 1206 751166

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

- **Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**
  - Eye irritation (Category 2)
- **Classification according to EU Directives 67/548/EEC or 1999/45/EC**
  - Irritating to eyes.

2.2 Label elements

- **Labelling according Regulation (EC) No 1272/2008 [CLP]**

  - **Pictogram**
  - **Signal word**: Warning
  - **Hazard statement(s)**
    - H319: Causes serious eye irritation.
  - **Precautionary statement(s)**
    - P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - **Supplemental Hazard Statements**: none

- **According to European Directive 67/548/EEC as amended.**

- **Hazard symbol(s)**
2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula: C₆H₈O₇
Molecular Weight: 192.12 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric acid</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>77-92-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>201-069-1</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
Vomiting, Diarrhoea, Damage to tooth enamel., Dermatitis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
no data available

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end uses
no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de,
test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: crystalline
   Colour: white

b) Odour
   no data available

c) Odour Threshold
   no data available

d) pH
   1.8 at ca. 50 g/l at 25 °C

e) Melting point/freezing point
   Melting point/range: 153 - 159 °C - lit.

f) Initial boiling point and boiling range
   no data available

g) Flash point
   no data available

h) Evaporation rate
   no data available

i) Flammability (solid, gas)
   no data available

j) Upper/lower flammability or explosive limits
   Lower explosion limit: 8 % (V)

k) Vapour pressure
   no data available

l) Vapour density
   no data available

m) Relative density
   no data available

n) Water solubility
   383 g/l at 25 °C

o) Partition coefficient: n-octanol/water
   log Pow: -1.64 at 20 °C

p) Autoignition temperature
   no data available

q) Decomposition temperature
   no data available

r) Viscosity
   no data available

s) Explosive properties
   no data available

t) Oxidizing properties
   no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
no data available
10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Oxidizing agents, Bases, Reducing agents, Nitrates

10.6 Hazardous decomposition products
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 5,400 mg/kg
LD50 Dermal - rat - > 2,000 mg/kg

Skin corrosion/irritation
Skin - rabbit - Mild skin irritation - OECD Test Guideline 404

Serious eye damage/eye irritation
Eyes - rabbit - Irritating to eyes. - OECD Test Guideline 405

Respiratory or skin sensitization
Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion May be harmful if swallowed.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes Causes serious eye irritation.

Signs and Symptoms of Exposure
Vomiting, Diarrhoea, Damage to tooth enamel, Dermatitis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: GE7350000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish mortality LC50 - Leuciscus idus melanotus - 440 mg/l - 48 h
Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates

static test - Daphnia magna (Water flea) - 1,535 mg/l - 24 h
12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
no data available

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available

15.2 Chemical Safety Assessment
no data available

16. OTHER INFORMATION

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.