SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Citric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade name</td>
<td>Citric acid Anhydrous</td>
</tr>
<tr>
<td>CAS No.</td>
<td>77-92-9</td>
</tr>
<tr>
<td>EINECS No.</td>
<td>201-069-1</td>
</tr>
</tbody>
</table>

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

Identified use(s) | Used as a sour agent, buffering agent and antioxidant in the food industry; a correctant in pharmaceutical industry; used in detergents, buffering and chelating, sizing and as a sequestrant.

Uses advised against | No uses advised against

1.3 Details of the distributor of the Safety Data Sheet

Company Identification | Pestell Minerals & Ingredients Inc., 141 Hamilton Road, New Hamburg, On N3A 2H1
Emergency Response: | Phone: (1) 519-668-2877 - Email: qa@pestell.com CANUTEC (24hrs) 613-996-6666

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture


2.2 Label elements

2.2.1 According to Regulation (EC) No. 1272/2008 & 453/2010 (CLP)

Hazard Pictogram

Signal word(s) | Warning
Hazard statement(s) | H319: Causes serious eye irritation


Hazard Symbol

Risk Phrases | R36. Irritating to eye
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance Composition

<table>
<thead>
<tr>
<th>Composition</th>
<th>% W/W</th>
<th>EC No.</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric acid</td>
<td>99.5 to 100.5</td>
<td>201-069-1</td>
<td>77-92-9</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

- **Inhalation**: Move to fresh air.
- **Skin Contact**: Wash off immediately with plenty of water for at least 15 minutes. If irritation persists, call a physician.
- **Eye Contact**: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- **Ingestion**: Do NOT induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

- Serious eye damage/eye irritation: Eye Irrit. 2

4.3 Indication of immediate medical attention and special treatment needed

Consult a physician.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

- **5.1.1 Suitable Extinguishing Media**: Use alcohol-resistant foam, carbon dioxide, dry powder or water fog.
- **5.1.2 Unsuitable Extinguishing Media**: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

- Oxides of carbon

5.3 Advice for fire-fighters

In the event of fire, wear self-contained breathing apparatus and wear suitable protective clothing.

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.4 Additional information

Explosion hazard from the generation of dust.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

- Use personal protective equipment.

6.2 Environmental precautions

- Do not flush substance into surface water or sewage system.

6.3 Methods and material for containment and cleaning up

- Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4 Reference to other sections

- Section 8

6.5 Additional Information

- Not known

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

- Avoid contact with skin and eyes. Use only in well-ventilated areas. Do not breathe vapours/dust

Revision: Citric acid Anhydrous
7.2 Conditions for safe storage, including any incompatibilities

Storage

Store in tightly closed original container in a dry, cool and well ventilated place. Keep in original container.

Incompatible materials

Strong oxidising substances, strong alkalis.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational Exposure Limits

No values assigned

8.1.2 Biological limit values

No values assigned

8.2 PNECs and DNELs

DNELs - Health

No true DNEL for systemic toxicity can be derived. Local effects, eye irritation should be considered.

<table>
<thead>
<tr>
<th>PNEC/PEC – Environment</th>
<th>PNEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic PNECaqua – freshwater (mg/l)</td>
<td>0.44</td>
</tr>
<tr>
<td>PNECaqua - marine water (mg/l)</td>
<td>0.044</td>
</tr>
<tr>
<td>PNECfreshwater-sediment (mg/kg d.w.)</td>
<td>3.46. (Equivalent to 0.752 mg/kg wwt)</td>
</tr>
<tr>
<td>The PNECmarine-sediment mg/kg d.w.</td>
<td>34.6. (Equivalent to 7.52 mg/kg wwt)</td>
</tr>
<tr>
<td>Terrestrial (PNECsoil mg/kg d.w.)</td>
<td>33.1</td>
</tr>
<tr>
<td>Sewage treatment plant PNEC STP (mg/l)</td>
<td>&gt;1000</td>
</tr>
<tr>
<td>Atmospheric Compartment</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

8.3 Exposure controls

8.3.1 Appropriate engineering controls

Minimise the risk of dust inhalation. Provide adequate ventilation.

8.3.2 Personal protection equipment

Eye/face protection

Safety glasses with side-shields

Skin protection (Hand protection/ Other)

Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday. Protective gloves must satisfy the specifications of EU Directive 89/686/EEC and EN 374

Respiratory protection

Provide adequate ventilation. Wear respirator where dust level exceeds 10 mg/m3.

Thermal hazards

Not applicable

8.3.3 Environmental Exposure Controls

Do not allow to enter drains, sewers or watercourses

8.3.4 Hygiene measures

Do not smoke in the work area. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid, crystalline</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>pH (Value)</td>
<td>1.7 (100g/l)</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Approx.153 °C at 1,013 hPa</td>
</tr>
<tr>
<td>Boiling point/boiling range (°C):</td>
<td>Decomposes before boiling</td>
</tr>
</tbody>
</table>

Revision: Citric acid Anhydrous

Page: 3/5
Flash Point (°C) Not known
Flammability Non flammable
Density 1.665 g/cm³ at 20°C
Solubility (Water) 590 g/L at 20°C
Solubility (Other) Soluble in alcohol
Partition Coefficient (Log Kow: -n-Octanol/water) -0.2 to -1.8
Decomposition Temperature (°C) Not known
Explosive properties Not explosive
Oxidising properties Not oxidising
9.2 Other information
Granulometry
Dissociation constant
The fraction below 100 μm = 84.1%; the D50 of the fraction below 100 μm = at 31.99 μm.
pKa: 3.13, 4.76 and 6.4 at 25°C

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity Reacts with alkaline materials
10.2 Chemical stability Stable under normal conditions
10.3 Conditions to avoid Exposure to heat and moisture.
10.4 Incompatible materials Sodium nitrite, potassium nitrite
10.5 Hazardous Decomposition Product(s) Oxides of carbon.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

11.1.1 Substances
Acute toxicity
Ingestion LD50 (mouse) 5400 mg/kg bw
Inhalation No data
Skin Contact. LD50 (dermal): >2000 mg/kg bw
Skin corrosion/irritation Mild skin irritant
Eye Contact Irritating
Respiratory or skin sensitization –skin Not a sensitizer
Mutagenicity Not a mutagen
Carcinogenicity Not a carcinogen
Reproductive toxicity Not a reproductive toxin
STOT - single exposure Not known
STOT - repeated exposure Not known
Aspiration hazard Not known
11.2 Other information Not known

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
Fish LC50 (48hr) 440 mg/l
D. Magna LC 50 (24hr) 1535 mg/l
Algae (8 d mat. (nominal) based on cell density 425 mg/l
12.2 Persistence and degradability Biodegradable
12.3 Bioaccumulative potential No expected to bioaccumulate
12.4 Mobility in soil Not applicable
12.5 Results of PBT and vPvB assessment Not a PBT or a vPvB
12.6 Other adverse effects Not known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.
13.2 Additional Information Not known
SECTION 14: TRANSPORT INFORMATION

14.1 Land transport (ADR/RID) Not subject to transport regulations.
14.2 Sea transport (IMDG) Not subject to transport regulations.
14.3 Air transport (ICAO/IATA) Not subject to transport regulations.
14.4 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not known

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture substance
15.1.1 EU regulations User to follow EU directives and regulations
Authorisations and/or restrictions on use Not applicable
15.1.2 National regulations User to follow national regulations

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Version 1.

LEGEND

LTLE Long Term Exposure Limit
STEL Short Term Exposure Limit
STOT Specific Target Organ Toxicity
DNEL Derived No Effect Level
PNEC Predicted No Effect Concentration

References:
Chemical Safety Report for citric acid and citrates

Risk Phrases and Safety Phrases
R36: Irritating to eyes
S26: Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

Hazard statement(s) and Precautionary statement(s)
H319: Causes serious eye irritation
P264: Wash hands thoroughly after handling.
P280: Wear eye protection.
P305 + P351 + P338. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.

Training advice: Ensure staff and workers receive adequate training with regular updates in the handling of chemicals

Additional Information. Not known

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