1 Identification

- Product identifier
- Trade name: Ethanoic Acid (Acetic Acid)
- Part number: FLSA-001
- CAS Number: 64-19-7
- EC number: 200-580-7
- Index number: 607-002-00-6
- Relevant identified uses of the substance or mixture and uses advised against
  Reagents and Standards for Analytical Chemical Laboratory Use
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
  Agilent Technologies Australia Pty Ltd
  679 Springvale Road
  Mulgrave
  Victoria 3170, Australia
- Further information obtainable from:
  Telephone: 1800 802 402
  e-mail: pdl-msds_author@agilent.com
- Emergency telephone number: CHEMTREC®: +(61) - 290372994

2 Hazard(s) Identification

- Classification of the substance or mixture
- Flame
  Flam. Liq. 3 H226 Flammable liquid and vapour.
- Corrosion
  Skin Corr. 1 H314 Causes severe skin burns and eye damage.
- Acute Tox. 4 H312 Harmful in contact with skin.
  Acute Tox. 4 H332 Harmful if inhaled.
- Label elements
- GHS label elements
  The substance is classified and labelled according to the Globally Harmonised System (GHS).
Hazard pictograms

- GHS02
- GHS05
- GHS07

Signal word: Danger

Hazard-determining components of labelling:
- acetic acid

Hazard statements:
- Flammable liquid and vapour.
- Harmful in contact with skin.
- Harmful if inhaled.
- Causes severe skin burns and eye damage.

Precautionary statements:
- If medical advice is needed, have product container or label at hand.
- Keep out of reach of children.
- Read label before use.
- Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- Keep container tightly closed.
- Ground/bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Do not breathe dusts or mists.
- Wash thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.
- IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- 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 CENTER/doctor.
- Specific measures (see on this label).
- Wash contaminated clothing before reuse.
- In case of fire: Use for extinction: CO2, powder or water spray.
- Store in a well-ventilated place. Keep cool.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards:

Results of PBT and vPvB assessment:
- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition and Information on Ingredients

- Chemical characterisation: Substances
- CAS No. Description
  64-19-7 acetic acid
4 First Aid Measures

- Description of first aid measures
- General information:
  Immediately remove any clothing soiled by the product.
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation:
  Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
  In case of unconsciousness place patient stably in side position for transportation.
- After skin contact:
  Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
  Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:
  Drink plenty of water and provide fresh air. Call for a doctor immediately.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire Fighting Measures

- Extinguishing media
- Suitable extinguishing agents:
  CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture
  During heating or in case of fire poisonous gases are produced.
- Advice for firefighters
- Protective equipment: Mouth respiratory protective device.

6 Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
- Environmental precautions:
  Dilute with plenty of water.
  Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralising agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
7 Handling and Storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
  - Information about fire - and explosion protection:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
    Keep respiratory protective device available.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Keep container tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls and personal protection

- Additional information about design of technical facilities: No further data; see item 7.
- Control parameters

<table>
<thead>
<tr>
<th>Ingredients with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7 acetic acid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>NES</th>
<th></th>
<th>WES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term value</td>
<td>37 mg/m³, 15 ppm</td>
<td>37 mg/m³, 15 ppm</td>
<td></td>
</tr>
<tr>
<td>Long-term value</td>
<td>25 mg/m³, 10 ppm</td>
<td>25 mg/m³, 10 ppm</td>
<td></td>
</tr>
</tbody>
</table>

- Additional information: The lists valid during the making were used as basis.
- Exposure controls
- Personal protective equipment:
  - General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing
    Wash hands before breaks and at the end of work.
    Avoid contact with the eyes and skin.
- Respiratory protection:
  When used as intended with Agilent instruments the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
  Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device equipment with appropriate organic or acid gas cartridge.
- Protection of hands:
  Although not recommended for constant contact with the chemicals or for clean up, nitrile gloves 11-13mil thickness are recommended for normal use. The breakthrough time is 1hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
9 Physical and Chemical Properties

- Material of gloves
  - For normal use: nitrile rubber, 11-13 mil thickness
  - For direct contact with the chemical: butyl rubber, 12-15 mil thickness
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

- Penetration time of glove material
  - For normal use: nitrile rubber: 1 hour
  - For direct contact with the chemical: butyl rubber: > 4 hours

- Eye protection:
  - Tightly sealed goggles

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Fluid</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>Pungent</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value</td>
<td>2.5</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>16.6 °C</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>118 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>39 °C</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>485 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Product is not explosive.</td>
</tr>
<tr>
<td></td>
<td>However, formation of explosive</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>Low: 4 Vol %</td>
</tr>
<tr>
<td></td>
<td>High: 17 Vol %</td>
</tr>
<tr>
<td>Vapour pressure at 20 °C</td>
<td>15 hPa</td>
</tr>
<tr>
<td>Density at 20 °C</td>
<td>1.1 g/cm³</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>
Trade name: Ethanoic Acid (Acetic Acid)

Solubility in / Miscibility with water: Fully miscible.

Partition coefficient: n-octanol/water: Not determined.

Viscosity:
- Dynamic at 20 °C: 1.24 mPas
- Kinematic: Not determined.

Solvent content:
- Organic solvents: 100.0 %
- VOC (EC) 100.00 %

Other information: No further relevant information available.

10 Stability and Reactivity

Reactivity: No further relevant information available.

Chemical stability:
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological Information

Information on toxicological effects:
- Acute toxicity

LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th>LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>3,310 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>1,060 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>Inhalative</td>
<td>11.4 mg/L (rat)</td>
<td></td>
</tr>
</tbody>
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64-19-7 acetic acid

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</tr>
</tbody>
</table>

Primary irritant effect:
- Skin corrosion/irritation: Strong caustic effect on skin and mucous membranes.
- Serious eye damage/irritation: Strong caustic effect.
- Respiratory or skin sensitisation: No sensitising effects known.
- Additional toxicological information:
  Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
12 Ecological Information

- **Toxicity**
- **Aquatic toxicity**: No further relevant information available.
- **Persistence and degradability**: No further relevant information available.
- **Behaviour in environmental systems**:
- **Bioaccumulative potential**: No further relevant information available.
- **Mobility in soil**: No further relevant information available.
- **Additional ecological information**:
  - **General notes**:
    Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    Must not reach sewage water or drainage ditch undiluted or unneutralised.
  - **Results of PBT and vPvB assessment**
    - **PBT**: Not applicable.
    - **vPvB**: Not applicable.
  - **Other adverse effects**: No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
  Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging**:
  - **Recommendation**: Disposal must be made according to official regulations.
  - **Recommended cleansing agents**: Water, if necessary together with cleansing agents.

14 Transport information

- **UN-Number**
  - ADG, IMDG, IATA: UN2789
  - ADN: not regulated

- **UN proper shipping name**
  - ADG: 2789 ACETIC ACID, GLACIAL
  - ADN: not regulated
  - IMDG, IATA: ACETIC ACID, GLACIAL

- **Transport hazard class(es)**
  - **ADG**
    - **Class**: not regulated
    - **Label**: 8+3
  - **ADN/R Class**: not regulated
  - **IMDG**
    - **Class**: not regulated
    - **Label**: 8/3
  - **IATA**
    - **Class**: not regulated
Trade name: Ethanoic Acid (Acetic Acid)

| · Label | 8 (3) |
| · Packing group | ADG, IMDG, IATA |
| · ADG, IMDG, IATA | II |
| · Environmental hazards: | Not applicable. |
| · Special precautions for user | Not applicable. |
| · Danger code (Kemler): | 83 |
| · EMS Number: | 8-04 |
| · Segregation groups | Acids |
| · Stowage Category | A |
| · Transport in bulk according to Annex II of Marpol and the IBC Code | Not applicable. |
| · Transport/Additional information: | |
| · ADG | Limited quantities (LQ) |
| · Limited quantities (LQ) | 1L |
| · Excepted quantities (EQ) | Code: E2 |
| · Maximum net quantity per inner packaging: | 30 ml |
| · Maximum net quantity per outer packaging: | 500 ml |
| · Transport category | 2 |
| · Tunnel restriction code | D/E |
| · IMDG | Limited quantities (LQ) |
| · Limited quantities (LQ) | 1L |
| · Excepted quantities (EQ) | Code: E2 |
| · Maximum net quantity per inner packaging: | 30 ml |
| · Maximum net quantity per outer packaging: | 500 ml |

| · UN "Model Regulation": | not regulated |

15 Regulatory information

| · Safety, health and environmental regulations/legislation specific for the substance or mixture |
| · Australian Inventory of Chemical Substances | Substance is listed. |
| · Standard for the Uniform Scheduling of Medicines and Poisons | S2, S5, S6 |
| · Directive 2012/18/EU | |
| · Named dangerous substances - ANNEX I | Substance is not listed. |
| · Seveso category P5c FLAMMABLE LIQUIDS | |
| · Qualifying quantity (tonnes) for the application of lower-tier requirements | 5,000 t |
| · Qualifying quantity (tonnes) for the application of upper-tier requirements | 50,000 t |
| · Chemical safety assessment: | A Chemical Safety Assessment has not been carried out. |

16 Other information

The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.
Trade name: Ethanoic Acid (Acetic Acid)

- **Department issuing SDS:** Document Control / Regulatory
- **Contact:** regulatory@ultrasci.com
- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - Flam. Liq. 3: Flammable liquids – Category 3
  - Acute Tox. 4: Acute toxicity – Category 4
  - Skin Corr. 1: Skin corrosion/irritation – Category 1
- *Data compared to the previous version altered.*