1 Identification of the substance/mixture and of the company/undertaking

· 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 Manufacturing GmbH & Co. KG
  Hewlett-Packard-Str.8
  76337 Waldbronn
  Germany
· Further information obtainable from:
  Telephone: 0800 603 1000
  pdl-msds_author@agilent.com
· Emergency telephone number: CHEMTREC®: +(44)-870-8200418

2 Hazards identification

· Classification of the substance or mixture
· Classification according to Regulation (EC) No 1272/2008

GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

GHS07

Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.

Label elements

Labelling according to Regulation (EC) No 1272/2008
The substance is classified and labelled according to the CLP regulation.
· **Hazard pictograms**

![GHS02, GHS05, GHS07]

- **Signal word** Danger

- **Hazard-determining components of labelling:**
  - acetic acid

- **Hazard statements**
  - H226 Flammable liquid and vapour.
  - H312+H332 Harmful in contact with skin or if inhaled.
  - H314 Causes severe skin burns and eye damage.

- **Precautionary statements**
  - P101 If medical advice is needed, have product container or label at hand.
  - P102 Keep out of reach of children.
  - P103 Read label before use.
  - P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - P233 Keep container tightly closed.
  - P240 Ground/bond container and receiving equipment.
  - P241 Use explosion-proof electrical/ventilating/lighting equipment.
  - P242 Use only non-sparking tools.
  - P243 Take precautionary measures against static discharge.
  - P260 Do not breathe dusts or mists.
  - P264 Wash thoroughly after handling.
  - P271 Use only outdoors or in a well-ventilated area.
  - P280 Wear protective gloves/protective clothing/eye protection/face protection.
  - P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
  - P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
  - P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P310 Immediately call a POISON CENTER/doctor.
  - P321 Specific treatment (see on this label).
  - P362+P364 Take off contaminated clothing and wash it before reuse.
  - P363 Wash contaminated clothing before reuse.
  - P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
  - P403+P235 Store in a well-ventilated place. Keep cool.
  - P405 Store locked up.
  - P501 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.
Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 23.03.2019  Version number 3  Revision: 23.03.2019

Trade name: Ethanoic Acid (Acetic Acid)

3 Composition/information on ingredients

- Chemical characterisation: Substances
- CAS No. Description
  64-19-7 acetic acid
- Identification number(s)
  - EC number: 200-580-7
  - Index number: 607-002-00-6

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 Firefighting 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.
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 storeroms 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/personal protection

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

- Control parameters

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>WEL Short-term value</th>
<th>Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-19-7 acetic acid</td>
<td>50 mg/m³, 20 ppm</td>
<td>25 mg/m³, 10 ppm</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
Trade name: Ethanoic Acid (Acetic Acid)

- 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

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Fluid
      - Colour: Colourless
      - Odour: Pungent
      - Odour threshold: Not determined.

- pH-value: 2.5

- Change in condition
  - Melting point/freezing point: 16.6 °C
  - Initial boiling point and boiling range: 118 °C

- Flash point: 39 °C

- Flammability (solid, gas): Not applicable.

- Ignition temperature: 485 °C

- Decomposition temperature: Not determined.

- Auto-ignition temperature: Not determined.

- Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

- Explosion limits:
  - Lower: 4 Vol %
  - Upper: 17 Vol %

- Vapour pressure at 20 °C: 15 hPa

- Density at 20 °C: 1.1 g/cm³

- Relative density

- Vapour density

- Evaporation rate Not determined.
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
  Harmful in contact with skin or if inhaled.
· LD/LC50 values relevant for classification:

<table>
<thead>
<tr>
<th>ATE (Acute Toxicity Estimates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
</tr>
<tr>
<td>Inhalative</td>
</tr>
</tbody>
</table>

64-19-7 acetic acid

| Oral | LD50 | 3,310 mg/kg (rat) |
| Dermal | LD50 | 1,060 mg/kg (rabbit) |
| Inhalative | LC50/4 h | 11.4 mg/L (rat) |

· Primary irritant effect:
· Skin corrosion/irritation
  Causes severe skin burns and eye damage.
· Serious eye damage/irritation
  Causes severe skin burns and eye damage.
· Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
· CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
· Germ cell mutagenicity Based on available data, the classification criteria are not met.
· Carcinogenicity Based on available data, the classification criteria are not met.
· Reproductive toxicity Based on available data, the classification criteria are not met.
· STOT-single exposure Based on available data, the classification criteria are not met.
Trade name: Ethanoic Acid (Acetic Acid)

- STOT-repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

### 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.
- **European waste catalogue**
  - HP 3 Flammable
  - HP 6 Acute Toxicity
  - HP 8 Corrosive

- **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**
  - ADR, IMDG, IATA UN2789
  - ADN not regulated

- **UN proper shipping name**
  - ADR 2789 ACETIC ACID, GLACIAL
  - ADN not regulated
  - IMDG, IATA ACETIC ACID, GLACIAL
Trade name: Ethanoic Acid (Acetic Acid)

- Transport hazard class(es)
  - ADR
    - Class: not regulated
    - Label: 8+3
  - ADN/R Class: not regulated
  - IMDG
    - Class: not regulated
    - Label: 8/3
  - IATA
    - Class: not regulated
    - Label: 8 (3)
  - Packing group
    - ADR, 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:
  - ADR
    - 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
    - Tunnel restriction code: D/E
  - IMDG
    - 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
  - 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
**Trade name: Ethanoic Acid (Acetic Acid)**

- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **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.

- **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
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - 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. 1A: Skin corrosion/irritation – Category 1A