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

· Product identifier
  · Trade name: Butanoic Acid (Butyric Acid)
  · Article number: FLSA-002
  · CAS Number:
    107-92-6
  · EC number:
    203-532-3
  · Index number:
    607-135-00-X
  · Application of the substance / the mixture Laboratory chemicals

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    ULTRA Scientific, inc.
    250 Smith Street
    North Kingstown, RI  02852
    USA

· Information department:
  Telephone: (401) 294-9400
  Fax: (401) 295-2300
  E-mail: regulatory@ultrasci.com

· Emergency telephone number:
  US: (800) 424-9300
  Outside US: (703) 527-3887

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS05 Corrosion
  Skin Corr. 1B  H314  Causes severe skin burns and eye damage.
  Flam. Liq. 4  H227  Combustible liquid.

· Label elements
  · GHS label elements
    The substance is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms
    GHS05

· Signal word Danger

· Hazard-determining components of labeling:
  butyric acid

· Hazard statements
  Combustible liquid.
  Causes severe skin burns and eye damage.

· Precautionary statements
  Keep away from flames and hot surfaces. – No smoking.
Trade name: Butanoic Acid (Butyric Acid)

Do not breathe dusts or mists. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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 treatment (see on this label). IF INHALED: Remove person to fresh air and keep comfortable for breathing. Wash contaminated clothing before reuse. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. In case of fire: Use for extinction: CO2, powder or water spray. Store locked up. Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/regional/national/international regulations.

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 3
    - Fire = 2
    - Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    - HEALTH = 3
    - FIRE = 2
    - REACTIVITY = 0

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

**3 Composition/information on ingredients**

- Chemical characterization: Substances
- CAS No. Description
  - 107-92-6 butyric acid
- Identification number(s)
  - EC number: 203-532-3
  - Index number: 607-135-00-X

**4 First-aid measures**

- Description of first aid measures
  - General information: Immediately remove any clothing soiled by the product.
  - After inhalation: 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 copious amounts of water and provide fresh air. Immediately call a doctor.
  - Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
Trade name: Butanoic Acid (Butyric Acid)

- 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, extinguishing 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 neutralizing 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.
  See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  - PAC-1: 1.4 ppm
  - PAC-2: 16 ppm
  - PAC-3: 110 ppm

7 Handling and storage

- Handling:
- Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Prevent formation of aerosols.
- Information about protection against explosions and fires:
  Keep ignition sources away - Do not smoke.
  Keep respiratory protective device available.
Trade name: Butanoic Acid (Butyric Acid)

- 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 receptacle tightly sealed.
  - Specific end use(s) No further relevant information available.

### 8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters
- Components with limit values that require monitoring at the workplace: Not required.
- Additional information: The lists that were valid during the creation 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.
- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- Protection of hands:

  ![Protective gloves]

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

  - Material of gloves
    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
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - Eye protection:

  ![Tightly sealed goggles]

  US
### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:** Fluid
    - **Form:** Fluid
    - **Color:** Colorless
    - **Odor:** Unpleasant
    - **Odor threshold:** Not determined.
    - **pH-value:** Not determined.
  - **Change in condition**
    - **Melting point/Melting range:** -5.55 °C (22 °F)
    - **Boiling point/Boiling range:** 164 °C (327 °F)
  - **Flash point:** 72 °C (162 °F)
  - **Flammability (solid, gaseous):** Not applicable.
  - **Ignition temperature:** 440 °C (824 °F)
  - **Decomposition temperature:** Not determined.
  - **Auto igniting:** Not determined.
  - **Danger of explosion:** Not determined.
  - **Explosion limits:**
    - **Lower:** 2 Vol %
    - **Upper:** 10 Vol %
  - **Vapor pressure at 20 °C (68 °F):** 0.43 hPa
  - **Density at 20 °C (68 °F):** 0.958 g/cm³ (7.995 lbs/gal)
  - **Relative density:** Not determined.
  - **Vapor density:** Not determined.
  - **Evaporation rate:** Not determined.
  - **Solubility in / Miscibility with Water at 20 °C (68 °F):** >38 g/l
  - **Partition coefficient (n-octanol/water):** Not determined.
  - **Viscosity:**
    - **Dynamic:** Not determined.
    - **Kinematic:** Not determined.
  - **Solvent content:**
    - **Organic solvents:** 0.0 %
    - **VOC content:** 0.0 g/l / 0.00 lb/gl
  - **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.
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:
      - ATE (Acute Toxicity Estimates)
        - Oral LD50: 2000 mg/kg (rat)
        - Dermal LD50: 530 mg/kg (rabbit)
      - 107-92-6 butyric acid
        - Oral LD50: 2940 mg/kg (rat)
        - Dermal LD50: 6083 mg/kg (rabbit)
  - Primary irritant effect:
    - on the skin: Caustic effect on skin and mucous membranes.
    - on the eye: Strong caustic effect.
    - Sensitization: No sensitizing 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.
  - Carcinogenic categories
    - IARC (International Agency for Research on Cancer)
      - Substance is not listed.
    - NTP (National Toxicology Program)
      - Substance is not listed.
    - OSHA-Ca (Occupational Safety & Health Administration)
      - Substance is not listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
- Behavior 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 (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 bodies of water or drainage ditch undiluted or unneutralized.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
### 13 Disposal considerations

**· Waste treatment methods**

**Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

**· Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**· Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

<table>
<thead>
<tr>
<th><strong>· UN-Number</strong></th>
<th>UN2820</th>
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</thead>
<tbody>
<tr>
<td><strong>· DOT, IMDG, IATA</strong></td>
<td>Butyric acid</td>
</tr>
<tr>
<td><strong>· UN proper shipping name</strong></td>
<td>BUTYRIC ACID</td>
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</tbody>
</table>

**· Transport hazard class(es)**

**· DOT**

- **Class:** 8 Corrosive substances
- **Label:** 8

**· IMDG, IATA**

- **Class:** 8 Corrosive substances
- **Label:** 8

**· Packing group**

- **DOT, IMDG, IATA:** III

**· Environmental hazards:**

- Not applicable.

**· Special precautions for user**

- Warning: Corrosive substances
- **Danger code (Kemler):** 80
- **EMS Number:** 8-05
- **Segregation groups:** Acids
- **Stowage Category:** A
- **Stowage Code:** SW1 Protected from sources of heat.
- **Handling Code:** H2 Keep as cool as reasonably practicable

**· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

- Not applicable.

(Contd. on page 8)
Trade name: Butanoic Acid (Butyric Acid)

- **Transport/Additional information:**
  - **DOT**
  - **Quantity limitations**
    - On passenger aircraft/rail: 5 L
    - On cargo aircraft only: 60 L

- **IMDG**
  - **Limited quantities (LQ)** 5L
  - **Excepted quantities (EQ)**
    - Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

- **UN "Model Regulation":** UN 2820 BUTYRIC ACID, 8, III

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**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **Sara**
  - **Section 355 (extremely hazardous substances):**
    - Substance is not listed.
  - **Section 313 (Specific toxic chemical listings):**
    - Substance is not listed.
  - **TSCA (Toxic Substances Control Act):**
    - Substance is listed.
  - **Proposition 65**
    - **Chemicals known to cause cancer:**
      - Substance is not listed.
    - **Chemicals known to cause reproductive toxicity for females:**
      - Substance is not listed.
    - **Chemicals known to cause reproductive toxicity for males:**
      - Substance is not listed.
    - **Chemicals known to cause developmental toxicity:**
      - Substance is not listed.

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - Substance is not listed.
  - **TLV (Threshold Limit Value established by ACGIH)**
    - Substance is not listed.
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
    - Substance is not listed.

- **GHS label elements**
  - The substance is classified and labeled according to the Globally Harmonized System (GHS).
**Trade name: Butanoic Acid (Butyric Acid)**

- **Hazard pictograms**

  GHS05

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  butyric acid

- **Hazard statements**
  Combustible liquid.
  Causes severe skin burns and eye damage.

- **Precautionary statements**
  Keep away from flames and hot surfaces. – No smoking.
  Do not breathe dusts or mists.
  Wear protective gloves/protective clothing/eye protection/face protection.
  Wash thoroughly after handling.
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  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 treatment (see on this label).
  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  Wash contaminated clothing before reuse.
  If swallowed: Rinse mouth. Do NOT induce vomiting.
  In case of fire: Use for extinction: CO2, powder or water spray.
  Store locked up.
  Store in a well-ventilated place. Keep cool.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Document Control / Regulatory
- **Contact:** regulatory@ultrasci.com
- **Date of preparation / last revision** 01/10/2017 / -
- **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
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  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
  NIOSH: National Institute for Occupational Safety
| OSHA: Occupational Safety & Health |  |
| TLV: Threshold Limit Value |  |
| PEL: Permissible Exposure Limit |  |
| REL: Recommended Exposure Limit |  |
| Flam. Liq. 4: Flammable liquids – Category 4 |  |
| Skin Corr. 1B: Skin corrosion/irritation – Category 1B |  |