1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
   - Product name: 2-Fluoroethanol
   - Product Number: 160342
   - Brand: Aldrich
   - CAS-No.: 371-62-0

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
   - Company: Sigma-Aldrich
     3050 Spruce Street
     SAINT LOUIS MO  63103
     USA
   - Telephone: +1 800-325-5832
   - Fax: +1 800-325-5052

1.4 Emergency telephone number
   - Emergency Phone #: +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
   - Flammable liquids (Category 3), H226
   - Acute toxicity, Oral (Category 2), H300
   - Acute toxicity, Inhalation (Category 1), H330
   - Acute toxicity, Dermal (Category 2), H310
   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
   - Pictogram
   - Signal word: Danger
   - Hazard statement(s)
     - H226: Flammable liquid and vapour.
     - H300 + H310 + H330: Fatal if swallowed, in contact with skin or if inhaled.
   - Precautionary statement(s)
     - P210: Keep away from heat/sparks/open flames/hot surfaces. 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 dust/ fume/ gas/ mist/ vapours/ spray.
     - P262: Do not get in eyes, on skin, or on clothing.
P264    Wash skin thoroughly after handling.
P270    Do not eat, drink or smoke when using this product.
P271    Use only outdoors or in a well-ventilated area.
P280    Wear protective gloves/ eye protection/ face protection.
P284    Wear respiratory protection.
P301 + P310 + P330    IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P303 + P361 + P353    IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310    IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P363    Wash contaminated clothing before reuse.
P370 + P378    In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233    Store in a well-ventilated place. Keep container tightly closed.
P403 + P235    Store in a well-ventilated place. Keep cool.
P405    Store locked up.
P501    Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Formula : C₂H₅FO
Molecular weight : 64.06 g/mol
CAS-No. : 371-62-0
EC-No. : 206-740-2
Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Fluoroethanol</td>
<td>Flam. Liq. 3; Acute Tox. 2; Acute Tox. 1; Acute Tox. 2; H226, H300 + H310 + H330</td>
<td>90 - 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

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. Move out of dangerous area.

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. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. 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
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
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 firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

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 inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment
Eye/face protection
Face shield and safety glasses 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.

**Body Protection**
Complete suit protecting against chemicals, Flame retardant antistatic protective 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**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### 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>a) <strong>Appearance</strong></td>
<td>Form: clear, liquid</td>
</tr>
<tr>
<td></td>
<td>Colour: colourless</td>
</tr>
<tr>
<td>b) <strong>Odour</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>c) <strong>Odour Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>d) <strong>pH</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>e) <strong>Melting point/freezing point</strong></td>
<td>Melting point/range: -26.5 °C (-15.7 °F) - lit.</td>
</tr>
<tr>
<td>f) <strong>Initial boiling point and boiling range</strong></td>
<td>103 °C (217 °F) at 1,009 hPa (757 mmHg) - lit.</td>
</tr>
<tr>
<td>g) <strong>Flash point</strong></td>
<td>34 °C (93 °F) - closed cup</td>
</tr>
<tr>
<td>h) <strong>Evaporation rate</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>i) <strong>Flammability (solid, gas)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>j) <strong>Upper/lower flammability or explosive limits</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>k) <strong>Vapour pressure</strong></td>
<td>145 hPa (109 mmHg) at 55 °C (131 °F)</td>
</tr>
<tr>
<td></td>
<td>21 hPa (16 mmHg) at 20 °C (68 °F)</td>
</tr>
<tr>
<td>l) <strong>Vapour density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>m) <strong>Relative density</strong></td>
<td>1.091 g/cm3 at 25 °C (77 °F)</td>
</tr>
<tr>
<td>n) <strong>Water solubility</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>o) <strong>Partition coefficient: n-octanol/water</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>p) <strong>Auto-ignition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>q) <strong>Decomposition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>r) <strong>Viscosity</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>s) <strong>Explosive properties</strong></td>
<td>No data available</td>
</tr>
<tr>
<td>t) <strong>Oxidizing properties</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 9.2 Other safety information
No data available
10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong acids, Strong oxidizing agents, Strong reducing agents, Acid chlorides, Acid anhydrides, Phosphorus halides

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 10 h - 200 mg/m3
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

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.
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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

Reproductive toxicity
No data available
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

Additional Information
RTECS: KL1575000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

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
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3383 Class: 6.1 (3) Packing group: I
Proper shipping name: Toxic by inhalation liquid, flammable, n.o.s. (2-Fluoroethanol)
Reportable Quantity (RQ):
Poison Inhalation Hazard: Hazard zone A

IMDG
UN number: 3383 Class: 6.1 (3) Packing group: I EMS-No: F-E, S-D
Proper shipping name: TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. (2-Fluoroethanol)

IATA
UN number: 3383 Class: 6.1 (3)
Proper shipping name: Toxic by inhalation liquid, flammable, n.o.s. (2-Fluoroethanol)
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:
2-Fluoroethanol

CAS-No. 371-62-0
Revision Date 1993-04-24

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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</thead>
<tbody>
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<td>1993-04-24</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

<table>
<thead>
<tr>
<th>Acute Tox.</th>
<th>Acute toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq.</td>
<td>Flammable liquids</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H300</td>
<td>Fatal if swallowed.</td>
</tr>
<tr>
<td>H300 + H310 +</td>
<td>Fatal if swallowed, in contact with skin or if inhaled.</td>
</tr>
<tr>
<td>H330</td>
<td></td>
</tr>
<tr>
<td>H310</td>
<td>Fatal in contact with skin.</td>
</tr>
</tbody>
</table>

HMIS Rating
Health hazard: 4
Chronic Health Hazard: 3
Flammability: 0
Physical Hazard 0

NFPA Rating
Health hazard: 4
Fire Hazard: 3
Reactivity Hazard: 0
Further information
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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
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or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing
slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 02/02/2018 Print Date: 11/09/2018