1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Universal indicator solution
Product Number: 36828
Brand: Fluka
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Target Organ Effect, Irritant, Carcinogen

Target Organs
Nerves., Liver, Heart

GHS Classification
Flammable liquids (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2B)
Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 + H320 Causes skin and eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0
NFPA Rating

| Health hazard: | 2 |
| Fire:          | 3 |
| Reactivity Hazard: | 0 |

Potential Health Effects

**Inhalation**  
May be harmful if inhaled. Causes respiratory tract irritation.

**Skin**  
May be harmful if absorbed through skin. Causes skin irritation.

**Eyes**  
Causes eye irritation.

**Ingestion**  
May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms**: pH Indicator solution, universal pH 4-10

**Molecular Weight**: 46.07 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>Flam. Liq. 2; H225</td>
<td>60 - 100 %</td>
</tr>
</tbody>
</table>

CAS-No. 64-17-5  
EC-No. 200-578-6  
Index-No. 603-002-00-5

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. 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. Consult a physician.

**In case of eye contact**  
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**  
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

**Conditions of flammability**  
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media**  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**  
Wear self-contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**  
Hazardous decomposition products formed under fire conditions. - Carbon oxides

** Further information**  
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Use personal protective equipment. Avoid breathing vapors, 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.

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

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).

7. HANDLING AND STORAGE

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.

Conditions for safe storage
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.

Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>TWA</td>
<td>1,000 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans</td>
</tr>
</tbody>
</table>

The value in mg/m³ is approximate.

Personal protective equipment

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).

Hand 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.

Eye 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 and body protection
impervious clothing, 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.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
- Form: liquid, clear
- Colour: red

Safety data
- pH: 5.5 - 6.0 at 20 °C (68 °F)
- Melting point/freezing point: no data available
- Boiling point: no data available
- Flash point: 23 °C (73 °F)
- Ignition temperature: 363 °C (685 °F)
- Autoignition temperature: 363.0 °C (685.4 °F)
- Lower explosion limit: no data available
- Upper explosion limit: no data available
- Vapour pressure: no data available
- Density: 0.89 g/cm³ at 20 °C (68 °F)
- Water solubility: soluble
- Partition coefficient: n-octanol/water: no data available
- Relative vapour density: no data available
- Odour: no data available
- Odour Threshold: no data available
- Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
- Stable under recommended storage conditions.

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

Conditions to avoid
- Heat, flames and sparks.

Materials to avoid
- Strong acids, Acid chlorides, Acid anhydrides, Ammonia, Oxidizing agents, Peroxides

Hazardous decomposition products
- Hazardous decomposition products formed under fire conditions: Carbon oxides
- Other decomposition products: no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
- Oral LD50: no data available
Inhalation LC50  
no data available

Dermal LD50  
no data available

Other information on acute toxicity  
no data available

Skin corrosion/irritation  
no data available

Serious eye damage/eye irritation  
Eyes: no data available

Respiratory or skin sensitization  
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.

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 identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity  
no data available

Teratogenicity  
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)  
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)  
no data available

Aspiration hazard  
no data available

Potential health effects  
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. Causes skin irritation.

Eyes Causes eye irritation.

Signs and Symptoms of Exposure  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects  
no data available

Additional Information  
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
no data available

### 13. DISPOSAL CONSIDERATIONS

**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: 1170
- Class: 3
- Packing group: III
- Proper shipping name: Ethanol solutions
- Reportable Quantity (RQ):
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 1170
- Class: 3
- Packing group: III
- EMS-No: F-E, S-D
- Proper shipping name: ETHANOL SOLUTION
- Marine pollutant: No

**IATA**
- UN number: 1170
- Class: 3
- Packing group: III
- Proper shipping name: Ethanol solution

### 15. REGULATORY INFORMATION

**OSHA Hazards**
- Flammable liquid, Target Organ Effect, Irritant, Carcinogen

**SARA 302 Components**
- SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
- SARA 313: 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, Chronic Health Hazard

**Massachusetts Right To Know Components**

<table>
<thead>
<tr>
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<th>CAS-No.</th>
<th>Revision Date</th>
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</thead>
<tbody>
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<td>Ethanol</td>
<td>64-17-5</td>
<td>2007-03-01</td>
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**Pennsylvania Right To Know Components**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>
New Jersey Right To Know Components

Ethanol

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.

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

<table>
<thead>
<tr>
<th>Flammable liquids</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
</tr>
<tr>
<td>Highly flammable liquid and vapour.</td>
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</tbody>
</table>

Further information
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