1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name: Formalin solution, neutral buffered, 10%

Product Number: HT501320

Brand: Sigma

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich

3001 Spruce Street

SAINT LOUIS MO 63103

USA

Telephone: +1 800-355-5832

Fax: +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone #: (314) 776-6556

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA NCS)

Flammable liquids (Category 4), H227

Acute toxicity, Oral (Category 4), H302

Skin irritation (Category 2), H315

Skin sensitisation (Category 1), H317

Carcinogenicity (Category 2), H351

Specific target organ toxicity - single exposure (Category 1), H370

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):

H227 Combustible liquid

H302 Harmful if swallowed

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H318 Causes serious eye damage

H319 Causes serious eye damage to organs

Precautionary statement(s):

P201 Obtain special instructions before use.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Carc. 2; Aquatic Acute 3; H227, H301 + H311 + H313, H314, H317, H351, H402</td>
<td>1 - 5%</td>
</tr>
<tr>
<td>Methanol</td>
<td>Flam. Liq. 2; Acute Tox. 3; STOT GE 1; H225, H301 + H311 + H334, H317</td>
<td>1 - 5%</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: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
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 2.6) and/or in section 21

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
Carbon oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting 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
Use personal protective equipment. 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.

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 12). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 15.

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.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>C</td>
<td>0.3 ppm</td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Reworks</td>
<td></td>
<td></td>
<td></td>
<td>Eye &amp; Upper Respiratory Tract irritation</td>
</tr>
</tbody>
</table>
### TWA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>200 ppm</td>
<td>260 mg/m³</td>
<td>USA, NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>ST</td>
<td>250 ppm</td>
<td>325 mg/m³</td>
<td>USA, NIOSH Recommended Exposure Limits</td>
</tr>
</tbody>
</table>

### Potential for dermal absorption

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>200 ppm</td>
<td>260 mg/m³</td>
<td>USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>ST</td>
<td>250 ppm</td>
<td>325 mg/m³</td>
<td>USA, OSHA - TABLE Z.1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>

### STEL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td>250 ppm</td>
<td>325 mg/m³</td>
<td>USA, OSHA - TABLE Z.1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>

### Skin notation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td>250 ppm</td>
<td>325 mg/m³</td>
<td>USA, OSHA - TABLE Z.1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>Value</th>
<th>Biological specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>15 mg/m³</td>
<td>Urea</td>
</tr>
</tbody>
</table>

### Remarks

End of shift (As soon as possible after exposure ceases)

### 8.2 Exposure controls

**Appropriate engineering controls**

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

**Personal protective equipment**

- **Eye/face protection**
  - Tightly fitting safety goggles. Face shield (8-inch minimum). 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. The type of protective equipment must be selected according to the concentration and amount of the dangerous substances at the specific workplace.
- **Respiratory protection**
  - Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14377) 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).

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

- **Appearance**
  - Form: liquid
- **Odour**
  - no data available
- **Odour Threshold**
  - no data available
- **pH**
  - no data available
- **Melting point/freezing point**
  - no data available
- **Boiling point**
  - 100 °C (212 °F) at 1,013 hPa (760 mmHg)
- **Flash point**
  - 85 °C (185 °F)
- **Evaporation rate**
  - no data available
- **Flammability (solid, gas)**
  - no data available
- **Upper/lower flammability or explosive limits**
  - Upper explosion limit: 70 %V Lower explosion limit: 7 %V
- **Vapour pressure**
  - 52 hPa (40 mmHg) at 39 °C (102 °F)
- **Vapour density**
  - no data available
- **Relative density**
  - 1.000 g/cm³
- **Water solubility**
  - completely miscible
- **Partition coefficient a-octanol/water**
  - no data available
- **Auto-ignition temperature**
  - no data available
- **Decomposition temperature**
  - no data available
- **Viscosity**
  - no data available
- **Explosive properties**
  - no data available
- **Oxidising properties**
  - no data available

### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity

- **Heat**
  - no data available
- **Flammable**
  - no data available
- **Ignitability**
  - no data available
- **Explosive properties**
  - no data available
- **Strong oxidising agents**
  - no data available
- **Strong reducing agents**
  - no data available
- **Incompatible materials**
  - Strong bases, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Amines, Strong acids, Acid chlorides, Acid anhydrides, Reducing agents, Peroxides, Isocyanates, Phenol, Aniline

#### 10.2 Chemical stability

- **Stable under recommended storage conditions.**

#### 10.3 Possibility of hazardous reactions

- **no data available**

#### 10.4 Conditions to avoid

- **Heat, flames and sparks**

#### 10.5 Incompatible materials

- **Strong bases, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Amines, Strong acids, Acid chlorides, Acid anhydrides, Reducing agents, Peroxides, Isocyanates, Phenol, Aniline**

#### 10.6 Hazardous decomposition products

- **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**
  - no data available
- **Inhalation**
  - no data available
12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. 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)
NA-Number: 1993 Class: NONE Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (Methanol, Sodium dihydrogenorthophosphate monohydrate, Formaldehyde)
Reportable Quantity (RQ): 2500 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

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

Formaldehyde
CAS-No. 50-00-0
Revision Date 2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

Methanol
CAS-No. 67-56-1
Revision Date 2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Formaldehyde
CAS-No. 50-00-0
Revision Date 2007-07-01

Methanol
67-56-1
2007-07-01

Pennsylvania Right To Know Components

Water
CAS-No. 7732-18-5
Revision Date 2007-07-01

Formaldehyde
50-00-0
2007-07-01

Methanol
67-56-1
2007-07-01

Disodium hydrogenorthophosphate
7556-79-4
2007-03-01

New Jersey Right To Know Components

Water
7732-18-5
2007-07-01

Formaldehyde
50-00-0
2007-07-01

Methanol
67-56-1
2007-07-01

California Prop. 65 Components

no data available
16. OTHER INFORMATION

Full text of H-Statements referred to under sections 1 and 3.

Acute Tox.  Acute toxicity
Aquatic Acute  Acute aquatic toxicity
Carc.  Carcinogenicity
Eye Dam.  Serious eye damage
Flam. Liq.  Flammable liquids
H225  Highly flammable liquid and vapour.
H227  Combustible liquid
H301 + H311 +  Toxic if swallowed, in contact with skin or if inhaled
H331  Harmful if swallowed.
H314  Causes severe skin burns and eye damage.
H315  Causes skin irritation.
H317  May cause an allergic skin reaction.
H318  Causes serious eye damage.
H361  Suspected of causing cancer.
H370  Causes damage to organs.
H402  Harmful to aquatic life.
Skin Corr.  Skin corrosion
Skin Sens.  Skin sensitisation
STOT SE Specific target organ toxicity - single exposure

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

NFPA Rating
Health hazard:  3
Fire Hazard:  2
Reactivity Hazard:  0

Further Information
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