1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name : Generator solution C
Product Number : 09006
Brand : KAM

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 : Kam Controls, Inc.
3939 Ann Arbor Drive
Houston, TX 77063
USA
Telephone : +1 713-784-0000
Fax : +1 713-784-0001

1.4 Emergency telephone number
Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Skin irritation (Category 2), H315
Serious eye damage (Category 1), H318
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)**
  - H225 : Highly flammable liquid and vapour.
  - H301 + H311 + H331 : Toxic if swallowed, in contact with skin or if inhaled
  - H315 : Causes skin irritation.
  - H318 : Causes serious eye damage.
  - H370 : Causes damage to organs.

- **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.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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 or doctor/ physician.
Specific measures (see supplemental first aid instructions on this label).
Rinse mouth.
If skin irritation occurs: Get medical advice/ attention.
Remove/Take off immediately all contaminated clothing.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/ container to an approved waste disposal plant.

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

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>Flam. Liq. 2; Acute Tox. 3;</td>
<td>&gt;= 50 - &lt; 70 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>STOT SE 1; H225, H301 +</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>H311 + H331, H370</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>603-001-00-X</td>
<td></td>
</tr>
<tr>
<td>Registration number</td>
<td>01-2119433307-44-XXXX</td>
<td></td>
</tr>
<tr>
<td>2,2'-Iminobisethanol hydriodide</td>
<td>Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; STOT RE 2; H302, H315, H318, H373</td>
<td>&gt;= 1 - &lt; 5 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>134227-25-1</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>Acute Tox. 3; Skin Corr. 1B;</td>
<td>&gt;= 1 - &lt; 5 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>Eye Dam. 1; H314, H331</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>7446-09-5</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>231-195-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>016-011-00-9</td>
<td></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 2.2) 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. Use explosion-proof equipment. 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

#### Components with workplace 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>Methanol</td>
<td>67-56-1</td>
<td>TWA</td>
<td>200.000000 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>260.000000 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200.000000 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
</tbody>
</table>

**Remarks**
- Headache
- Nausea
- Dizziness
- Eye damage
- Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
- Danger of cutaneous absorption

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
<td>TWA</td>
<td>5.000000 ppm 13.000000 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.25 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

**Potential for dermal absorption**

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
<td>TWA</td>
<td>5.000000 ppm 13.000000 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.25 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

**The value in mg/m³ is approximate.**

**Pulmonary function**
- Lower Respiratory Tract irritation
- Not classifiable as a human carcinogen
<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.000000 ppm 5.000000 mg/m³</td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>5.000000 ppm 13.000000 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Methanol</td>
<td>15.0000 mg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

**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**
Tightly fitting safety goggles. Faceshield (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, 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 AXBEK (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

a) Appearance  
Form: liquid

b) Odour  
No data available

c) Odour Threshold  
No data available

d) pH  
No data available

e) Melting point/freezing point  
No data available

f) Initial boiling point and boiling range  
63 °C (145 °F) at 1,013 hPa (760 mmHg)

g) Flash point  
14 °C (57 °F) - closed cup

h) Evaporation rate  
No data available

i) Flammability (solid, gas)  
No data available
j) Upper/lower flammability or explosive limits No data available
k) Vapour pressure No data available
l) Vapour density No data available
m) Relative density 1.064 g/cm³
n) Water solubility No data available
o) Partition coefficient: n-octanol/water No data available
p) Auto-ignition temperature No data available
q) Decomposition temperature No data available
r) Viscosity No data available
s) Explosive properties No data available
t) Oxidizing properties No data available

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. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Zinc, Acids, Oxidizing agents, Alkali metals, Strong oxidizing agents, Acid chlorides, Acid anhydrides, Reducing agents, Strong reducing agents

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
Dermal: No data available
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:  3 - Group 3: Not classifiable as to its carcinogenicity to humans (Sulphur dioxide)

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

**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: Not available

Methyl alcohol may be fatal or cause blindness if swallowed, Cannot be made non-poisonous, Effects due to ingestion may include; Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion, Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system - Breathing difficulties - Based on Human Evidence  
Liver - Irregularities - Based on Human Evidence  
Stomach - Irregularities - Based on Human Evidence (Methanol)  
Stomach - Irregularities - Based on Human Evidence (Sulphur dioxide)

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.
14. TRANSPORT INFORMATION

DOT (US)
UN number: 1230  Class: 3  Packing group: II
Proper shipping name: Methanol, solution
Reportable Quantity (RQ): 0.03L
Poison Inhalation Hazard: No

IMDG
UN number: 1230  Class: 3 (6.1)  Packing group: II  EMS-No: F-E, S-D
Proper shipping name: METHANOL, SOLUTION

IATA
UN number: 1230  Class: 3 (6.1)  Packing group: II
Proper shipping name: Methanol, solution

15. REGULATORY INFORMATION

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

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
</tr>
</tbody>
</table>

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

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
</tr>
<tr>
<td>Bis(hydroxyethyl)ammonium chloride</td>
<td>14426-21-2</td>
</tr>
<tr>
<td>2,2’-Iminobisethanol hydriodide</td>
<td>134227-25-1</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
</tr>
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<td>Bis(hydroxyethyl)ammonium chloride</td>
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<td>134227-25-1</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
</tr>
<tr>
<td>Sulphur dioxide</td>
<td>7446-09-5</td>
</tr>
</tbody>
</table>

Contaminated packaging
Dispose of as unused product.
### 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>Eye Dam.</td>
<td>Serious eye damage</td>
</tr>
<tr>
<td>Flam. Liq.</td>
<td>Flammable liquids</td>
</tr>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed.</td>
</tr>
<tr>
<td>H301 + H311 +</td>
<td>Toxic if swallowed, in contact with skin or if inhaled</td>
</tr>
<tr>
<td>H331</td>
<td></td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled.</td>
</tr>
<tr>
<td>H370</td>
<td>Causes damage to organs.</td>
</tr>
<tr>
<td>H373</td>
<td>May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Skin Corr.</td>
<td>Skin corrosion</td>
</tr>
<tr>
<td>Skin Irrit.</td>
<td>Skin irritation</td>
</tr>
<tr>
<td>STOT RE</td>
<td>Specific target organ toxicity - repeated exposure</td>
</tr>
<tr>
<td>STOT SE</td>
<td>Specific target organ toxicity - single exposure</td>
</tr>
</tbody>
</table>

**HMIS Rating**

| Health hazard: | 3 |
| Chronic Health Hazard: | * |
| Flammability: | 3 |
| Physical Hazard | 0 |

**NFPA Rating**

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

**Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a 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 product. **Fluka** and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

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