This kit has four Safety Data Sheets associated with it, which correspond to the kit components which contain hazardous or carcinogenic ingredients in excess of threshold amounts.

<table>
<thead>
<tr>
<th>Components</th>
<th>SDS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM-03-003, TM-04-003 Denaturing Solution</td>
<td>TM003MSDS</td>
</tr>
<tr>
<td>TM-03-005, TM-04-005 Desulfonation Buffer Concentrate</td>
<td>TM005MSDS</td>
</tr>
<tr>
<td>TM-03-007 Bisulfite Diluent</td>
<td>TM007MSDS</td>
</tr>
<tr>
<td>TM-03-008, TM-04-008 Magnetic Bead Solution</td>
<td>TM008MSDS</td>
</tr>
</tbody>
</table>
1. Product and Supplier Identification

1.1 Product identification

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>Denaturing solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number:</td>
<td>TM-03-003, TM-04-003</td>
</tr>
<tr>
<td>REACH No.</td>
<td>A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.</td>
</tr>
</tbody>
</table>

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

- Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Supplier identification

- NuGEN Technologies, Inc.
  - 201 Industrial Road
  - Suite 310
  - San Carlos, CA 94070
  - United States
  - 650-590-3600

1.4 Emergency contact

- 800-255-3924 (CHEMTEL US)
- 813-248-0585 (CHEMTEL INTERNATIONAL)

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

2. Hazards Identification

2.1 Classification of the substance or mixture

- Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
  - Sodium hydroxide: Skin corrosion (Cat 1A)

- Classification according to EU Directives 67/548/EEC or 1999/45/EC
  - C Corrosive R35

2.2 Labelling and precautionary statements:

- Labelling according to Regulation (EC) No 1272/2008 [CLP]

  - **Pictogram**

  - **Hazard statement(s):** H314 Causes severe burns and eye damage.
  - **Precautionary statement(s):** P280 Wear protective gloves/protective clothing/eye protection/face protection.
2.3 Other hazards

None

3. Composition/Information on Ingredients

3.1 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration (%/vol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1310-73-2</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>215-185-5</td>
<td>Skin Corr. 1A; H314</td>
</tr>
<tr>
<td>Index-No.</td>
<td>011-002-00-6</td>
<td>&lt;4%</td>
</tr>
</tbody>
</table>

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.

**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.

**If swallowed**
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
To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly tested.

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 powder or carbon dioxide.

5.2 Special hazards arising from the substance or mixture:
Sodium 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 vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal, see section 13.

7. Handling and Storage

7.1 Precautions and safe handling
Avoid inhalation of vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are open must be carefully resealed and kept upright to prevent leakage.
7.3 Specific end user(s)
No data available.

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>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>STEL</td>
<td>2 mg/m3</td>
<td>UK. EH40 WEL – Workplace Exposure Limits</td>
</tr>
</tbody>
</table>

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
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 contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standards EN 374 derived from it.

Body protection
Impervious 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 particle respiratory type N100 (US) or type P3 (EN 143) 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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sodium hydroxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: liquid</td>
</tr>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>f) Initial boiling point and range</td>
<td>No data available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability exposure limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Relative density</td>
<td>No data available</td>
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<tr>
<td>n) Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>o) Partition Coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>p) Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>s) Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>t) Oxidizing properties</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

No data available.

10.4 Conditions to avoid

No data available.
10.5 Incompatible materials
   Acids, organic materials, chlorinated solvents, aluminum, phosphorus, tin, tin oxides, zinc.

10.6 Hazardous decomposition products
   No data available.

11. Toxicological Information

11.1 Information on toxicological effects
   Acute toxicity
   No data available.
   Skin corrosion/irritation
   No data available.
   Serious eye damage/eye irritation
   No data available.
   Respiratory or skin sensitization
   No data available.
   Germ cell mutagenicity
   No data available.
   Carcinogenicity
   No component of this product present at levels greater or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
   Reproductive
   No data available.
   Specific target organ toxicity – single exposure
   Inhalation – May cause respiratory irritation.
   Specific target organ toxicity – repeated exposure
   No data available.
   Aspiration hazard
   No data available.
   Additional information
   RTECS: VY8050000.

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
No data available.

12.6 Other adverse effects
No data available.

13. Disposal Considerations

13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

14. Transportation Information

14.1 UN number
ADR/RID: 1824  IMDG: 1824  IATA: 1824

14.2 UN proper shipping name
ADR/RID: SODIUM HYDROXIDE SOLUTION
IMDG: SODIUM HYDROXIDE SOLUTION
IATA: SODIUM HYDROXIDE SOLUTION

14.3 Transport hazard class
ADR/RID: 8  IMDG: 8  IATA: 8

14.4 Packaging group
ADR/RID: III  IMDG: III  IATA: III

14.5 Environmental hazards
ADR/RID: yes  IMDG Marine Pollutant: no  IATA: no

14.6 Special precautions for user
No data available.

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available.

15.2 Chemical safety assessment
No data available.
16. Other Information

16.1 Full text of H-code(s) and R-phrase(s) referred to under section 3.

H314 Causes severe skin burns and eye damage.
Skin Corr. Skin corrosion
C Corrosive
R35 Causes severe burns.

17. Disclaimer

The information contained herein is based on the data available to us and is believed to be correct. However NuGEN Technologies, Inc. makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.
1. Product and Supplier Identification

1.1 Product identification

Product Name: Desulfonation Buffer Concentrate
Part Number: TM-03-005, TM-04-005
REACH No. A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Supplier identification

NuGEN Technologies, Inc.
201 Industrial Road
Suite 310
San Carlos, CA 94070
650-590-3600

1.4 Emergency contact

800-255-3924 (CHEMTEL US)
813-248-0585 (CHEMTEL INTERNATIONAL)

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-CLP]
Sodium hydroxide Skin corrosion (Cat1A)

Classification according to EU Directives 67/548/EEC or 1999/45/EC
C Corrosive R35

2.2 Labelling and precautionary statements:

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Pictogram

Hazard statement(s): H314 Causes severe burns and eye damage.
Precautionary statement(s): P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy
to do so. Continue rinsing.

P310 Immediately call a poison center or doctor/physician.

Supplemental hazard information (EU):

R-phrase(s): R35 Causes severe burns.
S-phrase(s): S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 Wear suitable gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

2.3 Other hazards None

3. Composition/Information on Ingredients

3.1 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration (%/vol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
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<td></td>
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<tr>
<td>CAS-No.</td>
<td>1310-73-2</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>215-185-5</td>
<td>Skin Corr. 1A; H314</td>
</tr>
<tr>
<td>Index-No.</td>
<td>011-002-00-6</td>
<td></td>
</tr>
</tbody>
</table>

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.

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.

If swallowed
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
To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly tested.

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 powder or carbon dioxide.

5.2 Special hazards arising from the substance or mixture:
Sodium 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 vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal, see section 13.

7. Handling and Storage

7.1 Precautions and safe handling
Avoid inhalation of vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are open must be carefully resealed and kept upright to prevent leakage.
7.3 Specific end user(s)
No data available.

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>
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<td>2 mg/m³</td>
<td>UK. EH40 WEL – Workplace Exposure Limits</td>
</tr>
</tbody>
</table>

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
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 contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standards EN 374 derived from it.

Body protection
Impervious 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 particle respiratory type N100 (US) or type P3 (EN 143) 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

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<tr>
<th>Characteristic</th>
<th>Sodium hydroxide</th>
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</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: liquid</td>
</tr>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>f) Initial boiling point and range</td>
<td>No data available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>No data available</td>
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<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability exposure limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>n) Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>o) Partition Coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>p) Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>s) Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>t) Oxidizing properties</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

No data available.

10.4 Conditions to avoid

No data available.
10.5 Incompatible materials
Acids, organic materials, chlorinated solvents, aluminum, phosphorus, tin, tin oxides, zinc.

10.6 Hazardous decomposition products
No data available.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity
No data available.

Skin corrosion/irritation
No data available.

Serious eye damage/eye irritation
No data available.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No component of this product present at levels greater or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive
No data available.

Specific target organ toxicity – single exposure
Inhalation – May cause respiratory irritation.

Specific target organ toxicity – repeated exposure
No data available.

Aspiration hazard
No data available.

Additional information
RTECS: VY8050000.

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
No data available.

12.6 Other adverse effects
No data available.

13. Disposal Considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. Transportation Information

14.1 UN number
ADR/RID: 1824  IMDG: 1824  IATA: 1824

14.2 UN proper shipping name
ADR/RID: SODIUM HYDROXIDE SOLUTION
IMDG: SODIUM HYDROXIDE SOLUTION
IATA: SODIUM HYDROXIDE SOLUTION

14.3 Transport hazard class
ADR/RID: 8  IMDG: 8  IATA: 8

14.4 Packaging group
ADR/RID: III  IMDG: III  IATA: III

14.5 Environmental hazards
ADR/RID: yes  IMDG Marine Pollutant: no

14.6 Special precautions for user
No data available.

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available.

15.2 Chemical safety assessment
No data available.
16. Other Information

16.1 Full text of H-code(s) and R-phrase(s) referred to under section 3.

H314 Causes severe skin burns and eye damage.
Skin Corr. Skin corrosion
C Corrosive
R35 Causes severe burns.

17. Disclaimer

The information contained herein is based on the data available to us and is believed to be correct. However NuGEN Technologies, Inc. makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.
1. Product and Supplier Identification

1.1 Product identification

Product Name: Bisulfite Diluent
Part Number: TM-03-007
REACH No. A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Supplier identification

NuGEN Technologies
201 Industrial Road
San Carlos, CA 94070
United States
650-590-3644

1.4 Emergency contact

800-255-3924 (CHEMTEL US)
813-248-0585 (CHEMTEL INTERNATIONAL)

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Sodium hydroxide Skin corrosion (Cat 1A)

Classification according to EU Directives 67/548/EEC or 1999/45/EC
C Corrosive R35

2.2 Labelling and precautionary statements:

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Pictogram

Hazard statement(s): H314 Causes severe burns and eye damage.
Precautionary statement(s):
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P310 Immediately call a poison center or doctor/physician.

Supplemental hazard information (EU):
None

R-phrase(s):
R35 Causes severe burns.

S-phrase(s):
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 Wear suitable gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible). instructions/Safety data sheets.

2.3 Other hazards
None

3. Composition/Information on Ingredients

3.1 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration (%/vol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>Skin Corr. 1A; H314</td>
<td>5-10%</td>
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<tr>
<td>CAS-No.</td>
<td>1310-73-2</td>
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<tr>
<td>EC-No.</td>
<td>215-185-5</td>
<td></td>
</tr>
<tr>
<td>Index-No.</td>
<td>011-002-00-6</td>
<td></td>
</tr>
</tbody>
</table>

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.

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. Take off contaminated clothing and shoes immediately.

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

If swallowed
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
To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly tested.

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 powder or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Sodium 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 vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal, see section 13.

7. Handling and Storage

7.1 Precautions and safe handling
Avoid inhalation of vapor or mist.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are open must be carefully resealed and kept upright to prevent leakage.
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>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>STEL</td>
<td>2 mg/m³</td>
<td>UK. EH40 WEL – Workplace exposure limits</td>
</tr>
</tbody>
</table>

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
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 contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standards EN 374 derived from it.

Body protection
Impervious 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 particle respiratory type N100 (US) or type P3 (EN 143) 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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sodium hydroxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: liquid</td>
</tr>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>f) Initial boiling point and range</td>
<td>No data available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability exposure limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>n) Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>o) Partition Coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>p) Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>s) Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>t) Oxidizing properties</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
No data available.

10.4 Conditions to avoid
No data available.

10.5 Incompatible materials
Acids, organic materials, chlorinated solvents, aluminium, phosphorus, tin, tin oxides, zinc.

10.6 Hazardous decomposition products
No data available.

11. Toxicological Information

11.1 Information on toxicological effects
Acute toxicity
No data available.

Skin corrosion/irritation
No data available.

Serious eye damage/eye irritation
No data available.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No component of this product present at levels greater or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive
No data available.

Specific target organ toxicity – single exposure
Inhalation – May cause respiratory irritation.

Specific target organ toxicity – repeated exposure
No data available.

Aspiration hazard
No data available.

Additional information
RTECS: No data available.

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  
No data available.

12.6 Other adverse effects  
No data available.

### 13. Disposal Considerations

13.1 Waste treatment methods  
**Product**  
Offer surplus and non-recyclable solutions to a licensed disposal company.  
**Contaminated packaging**  
Dispose of as unused product.

### 14. Transportation Information

14.1 UN number  
ADR/RID: 1824  
IMDG: 31824  
IATA: 1824

14.2 UN proper shipping name  
ADR/RID: SODIUM HYDROXIDE SOLUTION  
IMDG: SODIUM HYDROXIDE SOLUTION  
IATA: SODIUM HYDROXIDE SOLUTION

14.3 Transport hazard class  
ADR/RID: 8  
IMDG: 8  
IATA: 8

14.4 Packaging group  
ADR/RID: III  
IMDG: III  
IATA: III

14.5 Environmental hazards  
ADR/RID: yes  
IMDG Marine Pollutant: no  
IATA: no

14.6 Special precautions for user  
No data available.

### 15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture  
No data available.

15.2 Chemical safety assessment  
No data available.
16. Other Information

16.1 Full text of H-code(s) and R-phrase(s) referred to under section 3.

- H314 Causes severe skin burns and eye damage.
- Skin Corr. Skin corrosion.
- C Corrosive.
- R35 Causes severe burns.

17. Disclaimer

The information contained herein is based on the data available to us and is believed to be correct. However NuGEN Technologies, Inc. makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.
1. Product and Supplier Identification

1.1 Product identification

Product Name: Magnetic Bead Solution  
Part Number: TM-03-008, TM-04-008  
REACH No. A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Supplier identification

NuGEN Technologies, Inc.  
201 Industrial Road  
Suite 310  
San Carlos, CA 94070  
650-590-3600

1.4 Emergency contact

800-255-3924 (CHEMTEL US)  
813-248-0585 (CHEMTEL INTERNATIONAL)

For research use only. Not intended for human or animal diagnostic or therapeutic uses.

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Sodium azide

Acute toxicity, Oral (Category 2), H300  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410

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

Classification according to EU Directives 67/548/EEC or 1999/45/EC

T+ Very toxic R28,R32  
N Dangerous for the environment R50/53

For the full text of the R-phrases mentioned in this Section, see Section 16

2.2 Labelling and precautionary statements:

Labelling according to Regulation (EC) No 1272/2008 [CLP]
Hazard statement(s):
H300 Fatal if swallowed
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s):
P264 Wash hands thoroughly after handling
P273 Avoid release to the environment
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P501 Dispose of contents/container to an approved waste disposal plant

Supplemental hazard information (EU):
EUH032 Contact with acids liberates very toxic gas.

2.3 Other hazards
Sodium Azide may react with lead and copper plumbing to form highly explosive metal azides. Rapidly absorbed through skin.

3. Composition/Information on Ingredients

3.1 Mixtures

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration (%/vol)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide</td>
<td>Acute Tox. 2; Acute Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H300 + H310, H410, EUH032</td>
<td>1 mM</td>
</tr>
<tr>
<td>CAS-No. 26628-22-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No. 247-852-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index-No. 011-004-00-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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 as a precaution.
If swallowed
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 symptoms and effects are described 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:
Dry powder.

5.2 Special hazards arising from the substance or mixture:
Sodium oxides.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for fire-fighting if necessary.

5.4 Further information
No data available.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal, see section 13.

7. Handling and Storage

7.1 Precautions and safe handling
No data available.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are open must be carefully resealed and kept upright to prevent leakage.
7.3 Specific end user(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>Sodium azide</td>
<td>26628-22-8</td>
<td>STEL</td>
<td>0.3 mg/m³</td>
<td>UK. EH40 WEL Workplace Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td>Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td>0.1 mg/m³</td>
<td>UK. EH40 WEL Workplace Exposure Limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td>0.1 mg/m³</td>
<td>Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values Identifies the possibility of significant uptake through the skin Indicative</td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td>0.3 mg/m³</td>
<td>Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Identifies the possibility of significant uptake through the skin Indicative</td>
<td></td>
</tr>
</tbody>
</table>

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
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 contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standards EN 374 derived from it.

Body protection
Complete suit protecting against chemicals, 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 particle respirator type N100 (US) or type P3 (EN 143) 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. Discharge into the environment must be avoided.
9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sodium azide</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: crystalline. Color: white</td>
</tr>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>10 at 65 g/L at 25 °C</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>275 °C</td>
</tr>
<tr>
<td>f) Initial boiling point and range</td>
<td>No data available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability exposure limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>0.01 hPa at 20 °C</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Relative density</td>
<td>1.850 g/cm³ at 20 °C</td>
</tr>
<tr>
<td>n) Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>o) Partition Coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>p) Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>300 °C</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>s) Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>t) Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2 Other safety information

Bulk density = 0.8 kg/m³

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

No data available.

10.4 Conditions to avoid

An explosion occurred when a mixture of sodium azide, methylene chloride, dimethylsulfoxide, and sulfuric acid were being concentrated on a rotary evaporator.
10.5 Incompatible materials
Halogenated hydrocarbon, metals, acids, acid chlorides.

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**
- LD<sub>50</sub> Oral - rabbit - 10 mg/kg
- LC<sub>50</sub> Inhalation - rat - 37 mg/m<sup>3</sup>
Remarks: Sense organs and special senses (nose, eye, ear, and taste): Eye: other.
Behavioral: Convulsions or effect on seizure threshold. Lungs, thorax, or respiration: Structural or functional change in trachea or bronchi.
- LD<sub>50</sub> Dermal - rabbit - 20 mg/kg

**Skin corrosion/irritation**
No data available.

**Serious eye damage/eye irritation**
No data available.

**Respiratory or skin sensitization**
No data available.

**Germ cell mutagenicity**
No data available.

**Carcinogenicity**
No component of this product present at levels greater or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive**
No data available.

**Specific target organ toxicity – single exposure**
Inhalation – May cause respiratory irritation.

**Specific target organ toxicity – repeated exposure**
No data available.

**Aspiration hazard**
No data available.

**Additional information**
RTECS: VY8050000.
Nausea, headache, vomiting, laboratory experiments in animals have shown sodium azide to produce a profound hypotensive effect, demyelination of myelinated nerve fibers in the central nervous system, testicular damage, blindness, attacks of rigidity, and hepatic and cerebral effects.
12. Ecological Information

12.1 Toxicity
Toxicity to *Daphnia* and other aquatic invertebrates. EC₅₀ - *Daphnia pulex* (Water flea) - 4.2 mg/L - 48h

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
No data available.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.

13. Disposal Considerations

13.1 Waste treatment methods
**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

14. Transportation Information

14.1 UN number
ADR/RID: 1687  IMDG: 1687  IATA: 1687

14.2 UN proper shipping name
ADR/RID: SODIUM AZIDE
IMDG: SODIUM AZIDE
IATA: SODIUM AZIDE

14.3 Transport hazard class
ADR/RID: 6.1  IMDG: 6.1  IATA: 6.1

14.4 Packaging group
ADR/RID: II  IMDG: II  IATA: II

14.5 Environmental hazards
ADR/RID: yes  IMDG Marine Pollutant: yes  IATA: no

14.6 Special precautions for user
No data available.
15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/Legislation specific for the substance or mixture
No data available.

15.2 Chemical safety assessment
No data available.

16. Other Information

16.1 Full text of H-statements referred to under sections 2 and 3.
Acute Tox. Acute toxicity.
Aquatic Acute Acute aquatic toxicity.
Aquatic Chronic Chronic aquatic toxicity.
EUH032 Contact with acids liberates very toxic gas.
H300 Fatal if swallowed.
H300 + H310 Fatal if swallowed or in contact with skin

16.2 Full text of R-phrases referred to under sections 2 and 3
N Dangerous for the environment.
T+ Very toxic.
R27 Very toxic in contact with skin.
R28 Very toxic if swallowed.
R32 Contact with acids liberates very toxic gas.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

17. Disclaimer

The information contained herein is based on the data available to us and is believed to be correct. However NuGEN Technologies, Inc. makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.