



# MATERIAL SAFETY DATA SHEET

## Nitrate Reductase Enzyme Preparation

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Supercedes Revision: 04/22/2009

**Unsuitable Extinguishing Media:** No data available.

### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
 Vacuum or sweep up material and place in disposal container.  
 Avoid raising dust.  
 After removal, ventilate contaminated area and flush thoroughly with water.

### 7. Handling and Storage

**Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
 Avoid contact with eyes, skin, and clothing.  
 Avoid prolonged or repeated exposure.  
 Do not reuse this container.  
 Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Store at correct temperature.

### 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS #     | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-----------|----------|-----------|--------------|
| 1. Nitrate Reductase                 | 9029-27-0 | No data. | No data.  | No data.     |

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Compatible chemical-resistant gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** No data available.

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Ventilation:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Work/Hygienic/Maintenance Practices:** Do not take internally.  
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
 Wash thoroughly after handling.

### 9. Physical and Chemical Properties

**Physical States:** [ ] Gas [ ] Liquid [ X ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Bulk density:** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** No data.

**Percent Volatile:** No data.

**Heat Value:** No data.

**Particle Size:** No data.

**Corrosion Rate:** No data.

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## Nitrate Reductase Enzyme Preparation

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**pH:** No data.  
**Appearance and Odor:** A lyophilized powder

### 10. Stability and Reactivity

**Stability:** Unstable [ ] Stable [ X ]  
**Conditions To Avoid - Instability:** protect from moisture  
**Incompatibility - Materials To Avoid:** strong oxidizing agents  
**Hazardous Decomposition Or Byproducts:** potassium oxides  
phosphorous oxides  
**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

### 11. Toxicological Information

**:** The toxicological effects of this compound have not been thoroughly studied.  
**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**:** Runoff from fire control or dilution water may cause pollution.

### 13. Disposal Considerations

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

### 14. Transport Information

**LAND TRANSPORT (US DOT)**  
**DOT Proper Shipping Name** Not dangerous goods.  
**LAND TRANSPORT (European ADR/RID)**  
**ADR/RID Proper Shipping Name** Not dangerous goods.  
**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

**European Community Hazard Symbol codes**  
No data available.  
**European Community Risk and Safety Phrases**  
No data available.  
**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #     | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|------------|---------------|---------|
| 1. Nitrate Reductase                 | 9029-27-0 | No            | No         | No            | No      |

#### US EPA CAA, CWA, TSCA

| Hazardous Components (Chemical Name) | CAS #     | EPA CAA      | EPA CWA NPDES | EPA TSCA | HPV/LPV |
|--------------------------------------|-----------|--------------|---------------|----------|---------|
| 1. Nitrate Reductase                 | 9029-27-0 | HAP, ODC ( ) | No            | No       |         |

### 16. Other Information

#### Company Policy or Disclaimer

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# MATERIAL SAFETY DATA SHEET

## Nitrate Reductase Cofactor Preparation

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 01/20/2010  
Revision: 01/19/2010  
Supersedes Revision: 04/22/2009  
Date Created: 04/03/2003

### 1. Product and Company Identification

**Product Code:** 780012  
**Product Name:** Nitrate Reductase Cofactor Preparation  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Health Hazards (Acute and Chronic):** Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** No data available.

### 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name)      | CAS # | Concentration | EC# |
|---|-------|---------------|-----|
| 1. Nitrate Reductase Cofactor Preparation | NA    | 100.0 %       | NA  |

### 4. First Aid Measures

**Emergency and First Aid Procedures:** If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Unusual Fire and Explosion Hazards:** No data available.  
**Hazardous Combustion Products:** No data available.  
**Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.  
**Unsuitable Extinguishing Media:** No data available.

### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
Vacuum or sweep up material and place in disposal container.  
Avoid raising dust.  
After removal, ventilate contaminated area and flush thoroughly with water.



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## Nitrate Reductase Cofactor Preparation

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**Hazardous Decomposition Or Byproducts:** No data available.  
**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

### 11. Toxicological Information

**:** The toxicological effects of this compound have not been thoroughly studied.  
**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**:** Runoff from fire control or dilution water may cause pollution.

### 13. Disposal Considerations

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

### 14. Transport Information

#### LAND TRANSPORT (US DOT)

**DOT Proper Shipping Name** Not dangerous goods.

#### LAND TRANSPORT (European ADR/RID)

**ADR/RID Proper Shipping Name** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

#### European Community Hazard Symbol codes

No data available.

#### European Community Risk and Safety Phrases

No data available.

#### US EPA SARA Title III

| Hazardous Components (Chemical Name)      | CAS # | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|---|-------|---------------|------------|---------------|---------|
| 1. Nitrate Reductase Cofactor Preparation | NA    | No            | No         | No            | No      |

#### US EPA CAA, CWA, TSCA

| Hazardous Components (Chemical Name)      | CAS # | EPA CAA     | EPA CWA NPDES | EPA TSCA | HPV/LPV |
|---|-------|-------------|---------------|----------|---------|
| 1. Nitrate Reductase Cofactor Preparation | NA    | HAP, ODC () | No            | No       |         |

### 16. Other Information

#### Company Policy or Disclaimer

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# MATERIAL SAFETY DATA SHEET

## NO Assay Nitrate Standard

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 01/20/2010  
Revision: 01/19/2010  
Supersedes Revision: 04/22/2009  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 780014  
**Product Name:** NO Assay Nitrate Standard  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Health Hazards (Acute and Chronic):** Irritant.  
May cause eye, skin, or respiratory system irritation.  
Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
Oxidizer.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** No data available.

### 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #     | Concentration | EC#       | RTECS #   |
|--------------------------------------|-----------|---------------|-----------|-----------|
| 1. Sodium Nitrate                    | 7631-99-4 | 0.0 -1.0 %    | 231-554-3 | WC5600000 |

### 4. First Aid Measures

**Emergency and First Aid Procedures:** If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
Use water spray/mist to cool closed containers.  
**Unusual Fire and Explosion Hazards:** May emit toxic fumes under fire conditions.  
**Hazardous Combustion Products:** No data available.  
**Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.  
**Unsuitable Extinguishing Media:** No data available.

# MATERIAL SAFETY DATA SHEET

## NO Assay Nitrate Standard

Page: 2  
 Printed: 01/20/2010  
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 Supersedes Revision: 04/22/2009

### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
 Vacuum or sweep up material and place in disposal container.  
 Avoid raising dust.  
 After removal, ventilate contaminated area and flush thoroughly with water.

### 7. Handling and Storage

**Hazard Label Information:** Avoid breathing harmful vapors. Do not reuse this container. Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
 Avoid contact with eyes, skin, and clothing.  
 Avoid prolonged or repeated exposure.  
 Do not reuse this container.  
 Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Keep tightly closed.  
 Store at correct temperature.

**Other Precautions:** Keep away from combustible materials.  
 Keep away from sources of ignition.

### 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS #     | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-----------|----------|-----------|--------------|
| 1. Sodium Nitrate                    | 7631-99-4 | No data. | No data.  | No data.     |

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Compatible chemical-resistant gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** Government approved respirator as conditions warrant.

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Ventilation:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Work/Hygienic/Maintenance Practices:** Do not take internally.  
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
 Wash thoroughly after handling.

### 9. Physical and Chemical Properties

**Physical States:** [ ] Gas [ ] Liquid [ X ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Bulk density:** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** No data.

**Percent Volatile:** No data.

**Heat Value:** No data.

**MATERIAL SAFETY DATA SHEET**  
**NO Assay Nitrate Standard**

**Particle Size:** No data.  
**Corrosion Rate:** No data.  
**pH:** No data.  
**Appearance and Odor:** A lyophilized powder

**10. Stability and Reactivity**

**Stability:** Unstable [ ] Stable [ X ]  
**Conditions To Avoid - Instability:** protect from moisture  
**Incompatibility - Materials To Avoid:** organic materials  
 powdered metals  
 strong acids  
 strong oxidizing agents  
 strong reducing agents  
**Hazardous Decomposition Or Byproducts:** nitrogen oxides  
 phosphorous oxides  
 potassium oxides  
 sodium oxides  
**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

**11. Toxicological Information**

**:** The toxicological effects of this compound have not been thoroughly studied.  
**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

**12. Ecological Information**

**:** Runoff from fire control or dilution water may cause pollution.

**13. Disposal Considerations**

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

**14. Transport Information**

**LAND TRANSPORT (US DOT)**  
**DOT Proper Shipping Name** Not dangerous goods.  
**LAND TRANSPORT (European ADR/RID)**  
**ADR/RID Proper Shipping Name** Not dangerous goods.  
**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

**15. Regulatory Information**

**European Community Hazard Symbol codes**  
 No data available.  
**European Community Risk and Safety Phrases**  
 No data available.  
**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #     | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|------------|---------------|---------|
| 1. Sodium Nitrate                    | 7631-99-4 | No            | No         | Yes-Cat. N511 | No      |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #     | EPA CAA      | EPA CWA NPDES | EPA TSCA           | HPV/LPV |
|--------------------------------------|-----------|--------------|---------------|--------------------|---------|
| 1. Sodium Nitrate                    | 7631-99-4 | HAP, ODC ( ) | No            | Inventory, 8A CAIR |         |

**16. Other Information**

**Company Policy or Disclaimer**

For research use only, not for human or veterinary clinical use.  
 DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# MATERIAL SAFETY DATA SHEET

## Nitrite Standard

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 01/20/2010  
Revision: 01/19/2010  
Supersedes Revision: 04/21/2009  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 780016  
**Product Name:** Nitrite Standard  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Health Hazards (Acute and Chronic):** Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestions, or skin absorption.  
May cause eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** No data available.

### 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #     | Concentration | EC#       | RTECS #   |
|--------------------------------------|-----------|---------------|-----------|-----------|
| 1. Sodium nitrite                    | 7632-00-0 | 0.0 -1.0 %    | 231-555-9 | RA1225000 |

### 4. First Aid Measures

**Emergency and First Aid Procedures:** If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
Use water spray/mist to cool closed containers.  
**Unusual Fire and Explosion Hazards:** No data available.  
**Hazardous Combustion Products:** No data available.  
**Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.  
**Unsuitable Extinguishing Media:** No data available.

# MATERIAL SAFETY DATA SHEET

## Nitrite Standard

Page: 2  
 Printed: 01/20/2010  
 Revision: 01/19/2010  
 Supersedes Revision: 04/21/2009

### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:**      Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
 Vacuum or sweep up material and place in disposal container.  
 Avoid raising dust.  
 After removal, ventilate contaminated area and flush thoroughly with water.

### 7. Handling and Storage

**Hazard Label Information:**      Avoid contact with skin and eyes.    Do not reuse this container.    Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Handling:**      Avoid breathing (dust, vapor, mist, gas).  
 Avoid contact with eyes, skin, and clothing.  
 Avoid prolonged or repeated exposure.  
 Do not reuse this container.  
 Use with adequate ventilation.  
 Wash thoroughly after handling.

**Precautions To Be Taken in Storing:**      Store at correct temperature.

### 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS #     | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-----------|----------|-----------|--------------|
| 1. Sodium nitrite                    | 7632-00-0 | No data. | No data.  | No data.     |

**Protective Equipment Summary - Hazard Label Information:**      Eye wash station in work area    Lab coat    Compatible chemical-resistant gloves    Safety glasses    Safety shower in work area    Vent Hood

**Respiratory Equipment (Specify Type):**      No data available.

**Eye Protection:**      Safety glasses

**Protective Gloves:**      Compatible chemical-resistant gloves

**Other Protective Clothing:**      Lab coat

**Ventilation:**      Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Work/Hygienic/Maintenance Practices:**      Do not take internally.  
 Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
 Wash thoroughly after handling.

### 9. Physical and Chemical Properties

**Physical States:**       Gas     Liquid     Solid

**Melting Point:**      No data.

**Boiling Point:**      No data.

**Autoignition Pt:**      No data.

**Flash Pt:**      No data.

**Explosive Limits:**      LEL: No data.      UEL: No data.

**Specific Gravity (Water = 1):**      No data.

**Bulk density:**      No data.

**Vapor Pressure (vs. Air or mm Hg):**      No data.

**Vapor Density (vs. Air = 1):**      No data.

**Evaporation Rate (vs Butyl Acetate=1):**      No data.

**Solubility in Water:**      No data.

**Percent Volatile:**      No data.

**Heat Value:**      No data.

**Particle Size:**      No data.

**Corrosion Rate:**      No data.

**pH:**      No data.

# MATERIAL SAFETY DATA SHEET

## Nitrite Standard

Page: 3

Printed: 01/20/2010

Revision: 01/19/2010

Supercedes Revision: 04/21/2009

**Appearance and Odor:** A lyophilized powder

### 10. Stability and Reactivity

**Stability:** Unstable [ ] Stable [ X ]  
**Conditions To Avoid - Instability:** No data available.  
**Incompatibility - Materials To Avoid:** No data available.  
**Hazardous Decomposition Or Byproducts:** No data available.  
**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

### 11. Toxicological Information

: The toxicological effects of this compound have not been thoroughly studied.  
**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

: Runoff from fire control or dilution water may cause pollution.

### 13. Disposal Considerations

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

### 14. Transport Information

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Proper Shipping Name** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

**European Community Hazard Symbol codes**

No data available.

**European Community Risk and Safety Phrases**

R36/37/38 - Irritating to eyes, respiratory system and skin.

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #     | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|------------|---------------|---------|
| 1. Sodium nitrite                    | 7632-00-0 | No            | Yes 100 LB | Yes           | No      |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #     | EPA CAA     | EPA CWA NPDES | EPA TSCA                | HPV/LPV |
|--------------------------------------|-----------|-------------|---------------|-------------------------|---------|
| 1. Sodium nitrite                    | 7632-00-0 | HAP, ODC () | No            | Inventory, 5A(2), 12(b) |         |

### 16. Other Information

**Company Policy or Disclaimer**

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# MATERIAL SAFETY DATA SHEET

## Nitrate/Nitrite Assay Buffer

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 01/20/2010  
Revision: 01/19/2010  
Supersedes Revision: 04/21/2009  
Date Created: 06/27/1996

### 1. Product and Company Identification

**Product Code:** 780022  
**Product Name:** Nitrate/Nitrite Assay Buffer  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Health Hazards (Acute and Chronic):** Irritant  
Irritating to eyes, respiratory system and skin.  
Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
The toxicological properties of this compound have not been fully evaluated.  
**LD 50 / LC 50:** Please refer to Section 11.  
**Signs and Symptoms Of Exposure:** No data available.

### 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #     | Concentration | EC#       | RTECS #   |
|--------------------------------------|-----------|---------------|-----------|-----------|
| 1. Potassium phosphate, Monobasic    | 7778-77-0 | 13.61 %       | 231-913-4 | TC6615500 |

### 4. First Aid Measures

**Emergency and First Aid Procedures:** If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Unusual Fire and Explosion Hazards:** Emits toxic fumes under fire conditions.  
**Hazardous Combustion Products:** No data available.  
**Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.  
**Unsuitable Extinguishing Media:** No data available.

**Nitrate/Nitrite Assay Buffer**

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Revision: 01/19/2010

Supercedes Revision: 04/21/2009

**6. Accidental Release Measures**

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.  
After removal, ventilate contaminated area and flush thoroughly with water.

**7. Handling and Storage**

**Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Provide adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
Avoid contact with eyes, skin, and clothing.  
Avoid prolonged or repeated exposure.  
Do not reuse this container.  
Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Store at correct temperature.

**8. Exposure Controls/Personal Protection**

| Hazardous Components (Chemical Name) | CAS #     | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|-----------|----------|-----------|--------------|
| 1. Potassium phosphate, Monobasic    | 7778-77-0 | No data. | No data.  | No data.     |

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Compatible chemical-resistant gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** No data available.

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Ventilation:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Work/Hygienic/Maintenance Practices:** Do not take internally.  
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
Wash thoroughly after handling.

**9. Physical and Chemical Properties**

**Physical States:** [ ] Gas [ X ] Liquid [ ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Bulk density:** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** No data.

**Percent Volatile:** N.A.

**Heat Value:** No data.

**Particle Size:** No data.

**Corrosion Rate:** No data.

**pH:** No data.

**Appearance and Odor:** A clear, colorless solution

**Nitrate/Nitrite Assay Buffer**

Printed: 01/20/2010

Revision: 01/19/2010

Supercedes Revision: 04/21/2009

**10. Stability and Reactivity**

**Stability:** Unstable [ ] Stable [ X ]

**Conditions To Avoid - Instability:** protect from moisture

**Incompatibility - Materials To Avoid:** strong oxidizing agents

**Hazardous Decomposition Or Byproducts:** phosphorous oxides  
potassium oxides

**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]

**Conditions To Avoid - Hazardous Reactions:** No data available.

**11. Toxicological Information**

**Chronic Toxicological Effects:** The toxicological effects of this compound have not been thoroughly studied.  
Potassium phosphate - Toxicity Data: Skin LD50 (rabbit): 4640 mg/kg  
Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
See actual entry in RTECS for complete information.  
Potassium phosphate RTECS Number: TS8050000

**Carcinogenicity/Other Information:** No data available.

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

**12. Ecological Information**

**:** Runoff from fire control or dilution water may cause pollution.

**13. Disposal Considerations**

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

**14. Transport Information**

**LAND TRANSPORT (US DOT)**  
**DOT Proper Shipping Name** Not dangerous goods.

**LAND TRANSPORT (European ADR/RID)**  
**ADR/RID Proper Shipping Name** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

**15. Regulatory Information**

**European Community Hazard Symbol codes**  
No data available.

**European Community Risk and Safety Phrases**  
No data available.

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #     | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|------------|---------------|---------|
| 1. Potassium phosphate, Monobasic    | 7778-77-0 | No            | No         | No            | No      |

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #     | EPA CAA     | EPA CWA NPDES | EPA TSCA  | HPV/LPV |
|--------------------------------------|-----------|-------------|---------------|-----------|---------|
| 1. Potassium phosphate, Monobasic    | 7778-77-0 | HAP, ODC () | No            | Inventory |         |

**16. Other Information**

**Company Policy or Disclaimer**

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# MATERIAL SAFETY DATA SHEET

## Sodium hydroxide (2.8 M)

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 01/20/2010  
Revision: 01/19/2010  
Supersedes Revision: 02/18/2006  
Date Created: 10/02/1997

### 1. Product and Company Identification

**Product Code:** 780068  
**Product Name:** Sodium hydroxide (2.8 M)  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Health Hazards (Acute and Chronic):** Causes eye, skin, or respiratory system irritation.  
Corrosive, causes burns.  
Material may be irritating to the mucous membranes and upper respiratory tract.  
May be fatal if swallowed.  
May be harmful by inhalation or skin absorption.  
The toxicological properties of this compound have not been fully evaluated.  
**LD 50 / LC 50:** Please refer to Section 11.  
**Signs and Symptoms Of Exposure:** Inhalation may result in inflammation, edema, and chemical pneumonitis.  
Inhalation may cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.  
Eye contact may result in permanent damage and complete vision loss.  
Ingestion may cause damage to the mouth, throat, and esophagus.

### 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #     | Concentration | EC#       | RTECS #   |
|--------------------------------------|-----------|---------------|-----------|-----------|
| 1. Sodium hydroxide                  | 1310-73-2 | 11.2 %        | 215-185-5 | WB4900000 |

### 4. First Aid Measures

**Emergency and First Aid Procedures:** If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water, or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Unusual Fire and Explosion Hazards:** No data available.  
**Hazardous Combustion Products:** No data available.

**Sodium hydroxide (2.8 M)**

**Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.

**Unsuitable Extinguishing Media:** No data available.

**6. Accidental Release Measures**

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.  
After removal, ventilate contaminated area and flush thoroughly with water.

**7. Handling and Storage**

**Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
Avoid contact with eyes, skin, and clothing.  
Avoid prolonged or repeated exposure.  
Do not reuse this container.  
Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Store at correct temperature.

**8. Exposure Controls/Personal Protection**

| Hazardous Components (Chemical Name) | CAS #     | OSHA PEL | ACGIH TWA | Other Limits |
|--------------------------------------|-----------|----------|-----------|--------------|
| 1. Sodium hydroxide                  | 1310-73-2 | 2 mg/m3  | No data.  | No data.     |

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Compatible chemical-resistant gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** No data available.

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Ventilation:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Work/Hygienic/Maintenance Practices:** Do not take internally.  
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
Wash thoroughly after handling.

**9. Physical and Chemical Properties**

**Physical States:** [ ] Gas [ X ] Liquid [ ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Bulk density:** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** No data.

**Percent Volatile:** N.A.

**Heat Value:** No data.

**Particle Size:** No data.

**Sodium hydroxide (2.8 M)**

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Revision: 01/19/2010

Supercedes Revision: 02/18/2006

**Corrosion Rate:** No data.  
**pH:** No data.  
**Appearance and Odor:** A clear, colorless solution.

**10. Stability and Reactivity**

**Stability:** Unstable [ X ] Stable [ ]  
**Conditions To Avoid - Instability:** No data available.  
**Incompatibility - Materials To Avoid:** acids  
**Hazardous Decomposition Or Byproducts:** sodium oxide  
**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]  
**Conditions To Avoid - Hazardous Reactions:** No data available.

**11. Toxicological Information**

**:** The toxicological effects of this compound have not been thoroughly studied.  
 Sodium hydroxide - Toxicity Data: Oral LDLo (rabbit): 500 mg/kg  
 Irritation Data: Eyes (rabbit): 50 ug/24hr severe; Skin (rabbit) 500 mg/24hr severe;  
**Chronic Toxicological Effects:** Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here.  
 See actual entry in RTECS for complete information.  
**Carcinogenicity/Other Information:** No data available.  
**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

**12. Ecological Information**

**:** Runoff from fire control or dilution water may cause pollution.

**13. Disposal Considerations**

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

**14. Transport Information**

**LAND TRANSPORT (US DOT)**

**DOT Proper Shipping Name:** Sodium hydroxide solution  
**DOT Hazard Class:** 8  
**DOT Hazard Label:** CORROSIVE  
**UN/NA Number:** UN1824  
**Packing Group:** II

**LAND TRANSPORT (European ADR/RID)**

**ADR/RID Proper Shipping Name:** Sodium hydroxide solution  
**UN Number:** 1824  
**Packing Group:** II

**AIR TRANSPORT (ICAO/IATA)**

**ICAO/IATA Proper Shipping Name:** Sodium hydroxide solution  
**UN Number:** 1824  
**Packing Group:** II  
**IATA Classification:** 8

**Additional Transport Information:** According to IATA Regulations, this product ships as an excepted quantity.  
 Transport in accordance with local, state, and federal regulations.

**15. Regulatory Information**

**European Community Hazard Symbol codes** C: Corrosive

**European Community Risk and Safety Phrases**

R35 - Causes severe burns.

**US EPA SARA Title III**

| Hazardous Components (Chemical Name) | CAS #     | Sec.302 (EHS) | Sec.304 RQ  | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|-----------|---------------|-------------|---------------|---------|
| 1. Sodium hydroxide                  | 1310-73-2 | No            | Yes 1000 LB | No            | No      |

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## Sodium hydroxide (2.8 M)

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Supercedes Revision: 02/18/2006

**US EPA CAA, CWA, TSCA**

| Hazardous Components (Chemical Name) | CAS #     | EPA CAA     | EPA CWA NPDES | EPA TSCA  | HPV/LPV |
|--------------------------------------|-----------|-------------|---------------|-----------|---------|
| 1. Sodium hydroxide                  | 1310-73-2 | HAP, ODC () | No            | Inventory |         |

### 16. Other Information

**Company Policy or Disclaimer**

For research use only, not for human or veterinary clinical use.

DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

# MATERIAL SAFETY DATA SHEET

## DAN Reagent

Page: 1

Cayman Chemical Company  
1180 E. Ellsworth Rd.  
Ann Arbor, MI 48108

Printed: 01/20/2010  
Revision: 01/19/2010  
Supersedes Revision: 02/18/2006  
Date Created: 10/02/1997

### 1. Product and Company Identification

**Product Code:** 780070  
**Product Name:** DAN Reagent  
**Manufacturer Information**  
**Company Name:** Cayman Chemical Company  
**Emergency Contact:** Cayman Chemical Company (800)364-9897  
**Information:** Cayman Chemical Company (734)971-3335

### 2. Hazards Identification

**Emergency Overview:** No data available.  
**Route(s) of Entry:** Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other: Injection  
**Health Hazards (Acute and Chronic):** Material may be irritating to the mucous membranes and upper respiratory tract.  
May be harmful by inhalation, ingestion, or skin absorption.  
May cause eye, skin, or respiratory system irritation.  
The toxicological properties of this compound have not been fully evaluated.  
**Signs and Symptoms Of Exposure:** No data available.

### 3. Composition/Information on Ingredients

| Hazardous Components (Chemical Name) | CAS #    | Concentration | EC#       |
|--------------------------------------|----------|---------------|-----------|
| 1. 2,3-Diaminonaphthalene            | 771-97-1 | 0.0 -5.0 %    | 212-241-0 |

### 4. First Aid Measures

**Emergency and First Aid Procedures:** If inhaled remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.  
If swallowed, wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.  
In case of contact with eyes, hold eyelids apart and flush eyes with plenty of water. After initial flushings, remove any contact lenses and continue flushing for at least 20 minutes. Have eyes examined and tested by medical personnel.  
In case of skin contact, immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

### 5. Fire Fighting Measures

**Flash Pt:** No data.  
**Explosive Limits:** LEL: No data. UEL: No data.  
**Special Fire Fighting Procedures:** As in any fire, wear self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.  
**Unusual Fire and Explosion Hazards:** No data available.  
**Hazardous Combustion Products:** No data available.  
**Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray when fighting fires involving this material.  
**Unsuitable Extinguishing Media:** No data available.

### 6. Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** Wear a NIOSH/MSHA approved self-contained breathing apparatus and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).  
Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.  
After removal, ventilate contaminated area and flush thoroughly with water.

# MATERIAL SAFETY DATA SHEET

## DAN Reagent

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### 7. Handling and Storage

**Hazard Label Information:** Avoid contact with skin and eyes. Do not reuse this container. Wash thoroughly after handling. Use only in a well ventilated area.

**Precautions To Be Taken in Handling:** Avoid breathing (dust, vapor, mist, gas).  
Avoid contact with eyes, skin, and clothing.  
Avoid prolonged or repeated exposure.  
Do not reuse this container.  
Use with adequate ventilation.  
Wash thoroughly after handling.

**Precautions To Be Taken in Storing:** Store at correct temperature.

### 8. Exposure Controls/Personal Protection

| Hazardous Components (Chemical Name) | CAS #    | OSHA PEL | ACGIH TLV | Other Limits |
|--------------------------------------|----------|----------|-----------|--------------|
| 1. 2,3-Diaminonaphthalene            | 771-97-1 | No data. | No data.  | No data.     |

**Protective Equipment Summary - Hazard Label Information:** Eye wash station in work area Lab coat Compatible chemical-resistant gloves Safety glasses Safety shower in work area Vent Hood

**Respiratory Equipment (Specify Type):** No data available.

**Eye Protection:** Safety glasses

**Protective Gloves:** Compatible chemical-resistant gloves

**Other Protective Clothing:** Lab coat

**Ventilation:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**Work/Hygienic/Maintenance Practices:** Do not take internally.  
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.  
Wash thoroughly after handling.

### 9. Physical and Chemical Properties

**Physical States:** [ ] Gas [ X ] Liquid [ ] Solid

**Melting Point:** No data.

**Boiling Point:** No data.

**Autoignition Pt:** No data.

**Flash Pt:** No data.

**Explosive Limits:** LEL: No data. UEL: No data.

**Specific Gravity (Water = 1):** No data.

**Bulk density:** No data.

**Vapor Pressure (vs. Air or mm Hg):** No data.

**Vapor Density (vs. Air = 1):** No data.

**Evaporation Rate (vs Butyl Acetate=1):** No data.

**Solubility in Water:** No data.

**Percent Volatile:** N.A.

**Heat Value:** No data.

**Particle Size:** No data.

**Corrosion Rate:** No data.

**pH:** No data.

**Appearance and Odor:** A clear, colorless solution.

### 10. Stability and Reactivity

**Stability:** Unstable [ X ] Stable [ ]

**Conditions To Avoid - Instability:** No data available.

**Incompatibility - Materials To Avoid:** oxidizing materials

# MATERIAL SAFETY DATA SHEET

## DAN Reagent

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Printed: 01/20/2010

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Supercedes Revision: 02/18/2006

**Hazardous Decomposition Or Byproducts:** carbon dioxide  
carbon monoxide  
nitrogen oxides

**Possibility of Hazardous Reactions:** Will occur [ ] Will not occur [ X ]

**Conditions To Avoid - Hazardous Reactions:** No data available.

### 11. Toxicological Information

**:** The toxicological effects of this compound have not been thoroughly studied.

**Carcinogenicity/Other Information:** No data available.

**Carcinogenicity:** NTP? No IARC Monographs? No OSHA Regulated? No

### 12. Ecological Information

**:** Runoff from fire control or dilution water may cause pollution.

### 13. Disposal Considerations

**Waste Disposal Method:** Dispose in accordance with local, state and federal regulations.

### 14. Transport Information

#### LAND TRANSPORT (US DOT)

**DOT Proper Shipping Name** Not dangerous goods.

#### LAND TRANSPORT (European ADR/RID)

**ADR/RID Proper Shipping Name** Not dangerous goods.

**Additional Transport Information:** Transport in accordance with local, state, and federal regulations.

### 15. Regulatory Information

**European Community Hazard Symbol codes** Xn: Harmful

#### European Community Risk and Safety Phrases

R22 - Harmful if swallowed.

R36/37/38 - Irritating to eyes, respiratory system and skin.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

#### US EPA SARA Title III

| Hazardous Components (Chemical Name) | CAS #    | Sec.302 (EHS) | Sec.304 RQ | Sec.313 (TRI) | Sec.110 |
|--------------------------------------|----------|---------------|------------|---------------|---------|
| 1. 2,3-Diaminonaphthalene            | 771-97-1 | No            | No         | No            | No      |

#### US EPA CAA, CWA, TSCA

| Hazardous Components (Chemical Name) | CAS #    | EPA CAA     | EPA CWA NPDES | EPA TSCA  | HPV/LPV |
|--------------------------------------|----------|-------------|---------------|-----------|---------|
| 1. 2,3-Diaminonaphthalene            | 771-97-1 | HAP, ODC () | No            | Inventory |         |

### 16. Other Information

**:** For research use only, not for human or veterinary clinical use.

#### Company Policy or Disclaimer

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