SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Nitric Oxide Fluorometric Assay Kit

PRODUCT CODES: Cat# K252-200

RESTRICTIONS ON USE: For laboratory research purposes. Not for drug or household use.

MANUFACTURER: BioVision, Inc.

ADDRESS: 155 S. Milpitas Boulevard, Milpitas, CA 95035

EMERGENCY PHONE: 858-373-8066

OTHER CALLS: 408-493-1800

FAX PHONE: 408-493-1801

EMAIL: sds@biovision.com

SECTION 2: HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Volume</th>
<th>Safety Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assay Buffer</td>
<td>Proprietary Buffer</td>
<td>50 ml</td>
<td>No hazards</td>
</tr>
<tr>
<td>Enzyme Cofactor</td>
<td>Lyophilized</td>
<td>--</td>
<td>No hazards</td>
</tr>
<tr>
<td>Enhancer</td>
<td>Lyophilized (contains Methoxy PMS)</td>
<td>--</td>
<td>See below</td>
</tr>
<tr>
<td>Nitrate Reductase</td>
<td>Lyophilized</td>
<td>--</td>
<td>No hazards</td>
</tr>
<tr>
<td>Nitrate Standard</td>
<td>Lyophilized (contains sodium nitrate)</td>
<td>--</td>
<td>See below</td>
</tr>
<tr>
<td>Nitrite Standard</td>
<td>Lyophilized (contains sodium nitrite)</td>
<td>--</td>
<td>See below</td>
</tr>
<tr>
<td>DAN Probe</td>
<td>Liquid (contains HCl)</td>
<td>1 ml</td>
<td>See below</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>Liquid</td>
<td>1 ml</td>
<td>See below</td>
</tr>
<tr>
<td>96-Well White Plate</td>
<td>--</td>
<td>2</td>
<td>No hazards</td>
</tr>
<tr>
<td>Plate Cover</td>
<td>--</td>
<td>2</td>
<td>No hazards</td>
</tr>
</tbody>
</table>

NOTE: The safety data shown below is based on pure ingredients: The amount in this kit comprises much less.

Methoxy-PMS:
Emergency Overview
GHS Classification: Acute toxicity, Oral (Category 4), H302
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351

GHS Label elements, including precautionary statements:

Pictogram:

Signal word: Warning
Hazard statement(s):
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.

Precautionary statement(s):
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF EXPOSED or concerned: Get medical advice/ attention.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
SAFETY DATA SHEET

SDS DATE: January 14, 2021

P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

HMIS Classification
- Health hazard: 2
- Flammability: 0
- Physical hazards: 0

NPFPA Rating
- Health Hazard: 2
- Fire: 0
- Reactivity Hazard: 0

Potential health hazard
- Causes serious eye irritation.
- Causes skin irritation.
- Harmful if swallowed.
- Material may be irritating to the mucous membranes and upper respiratory tract.
- May be harmful by inhalation or skin absorption.
- May cause respiratory system irritation.
- Suspected of causing cancer

Sodium nitrate:

Emergency Overview
GHS Classification: Oxidizing solids (Category 3), H272
Eye irritation (Category 2A), H319

GHS Label elements, including precautionary statements

Pictogram:
Signal word: Warning
Hazard statement(s):
- H272 May intensify fire; oxidizer.
- H319 Causes serious eye irritation
Precautionary statement(s):
- P210 Keep away from heat.
- P220 Keep/Store away from clothing/combustible materials.
- P221 Take any precaution to avoid mixing with combustibles.
- P264 Wash skin thoroughly after handling.
- P280 Wear protective gloves/eye protection/face protection.
- P305 + P351 + P338 IP IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 If eye irritation persists: Get medical advice/attention.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
- P501 Dispose of contents/container to an approved waste disposal plant.

HMIS Classification
- Health hazard: 
- Flammability: 
- Physical hazards: 

NPFPA Rating
- Health Hazard: 
- Fire: 
- Reactivity Hazard: 

Sodium nitrite:

Emergency Overview
GHS Classification: Oxidizing solids (Category 3), H272
Acute toxicity, Oral (Category 3), H301
Eye irritation (Category 2A), H319
Short-term (acute) aquatic hazard (Category 1), H400

GHS Label elements, including precautionary statements

Pictogram:
Signal word: Danger
Hazard statement(s):
- H272 May intensify fire; oxidizer.
- H301 Toxic if swallowed.
- H319 Causes serious eye irritation.
- H400 Very toxic to aquatic life.
Precautionary statement(s):
- P210 Keep away from heat.
- P220 Keep/Store away from clothing/combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/container to an approved waste disposal plant.

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

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

Potential Health Effects
Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation.
Eyes: May cause eye irritation.
Ingestion: Toxic if swallowed.

Aggravated Medical Condition: Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. DMSO is readily absorbed through skin and may carry such materials into the body.

HCl:

Emergency Overview
GHS Classification: Corrosive to metals (Category 1), H290
Skin corrosion (Category 1A), H314
Eye irritation (Category 2A), H319
Short-term (acute) aquatic hazard (Category 3), H402

GHS Label elements, including precautionary statements
Pictogram:

Signal word: Danger
Hazard statement(s):
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.

Precautionary statement(s):
P234 Keep only in original container.
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
P501 Dispose of contents/container to an approved waste disposal plant.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 0

NFPA Rating
Health hazard: 1
Fire: 1
Reactivity Hazard: 0
Potential Health Effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Skin: May be harmful if absorbed through skin. May cause skin irritation.

Eyes: May cause eye irritation.

Ingestion: May be harmful if swallowed


GHS Classification:

- Corrosive to metals (Category 1)
- Skin corrosion (Category 1A)
- Serious eye damage (Category 1)
- Acute aquatic toxicity (Category 3)

GHS Label elements, including precautionary statements

Pictogram:

Signal word: Danger

Hazard statement(s):

- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H402 Harmful to aquatic life.

Precautionary statement(s):

- P234 Keep only in original container.
- P264 Wash skin thoroughly after handling.
- P301 + P330 + P311 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.
- P405 Store locked up.
- P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
- P501 Dispose of contents/container to an approved waste disposal plant.

HMIS Classification

- Health hazard: 3
- Flammability: 0
- Physical hazards: 1

NFPA Rating

- Health Hazard: 3
- Fire: 0
- Reactivity Hazard: 0

Potential Health Effects

- Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
- Skin: May be harmful if absorbed through skin. Causes skin burns.
- Eyes: Causes severe eye burns.
- Ingestion: May be harmful if swallowed

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>EC-No.</th>
<th>Molecular Weight</th>
<th>Chemical Formula</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methoxy-PMS</td>
<td>65162-13-2</td>
<td>265-579-6</td>
<td>336.36</td>
<td>C15H16N6O6S</td>
<td>≤100%</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>7631-99-4</td>
<td>231-554-3</td>
<td>84.99</td>
<td>NaNO3</td>
<td>≤100%</td>
</tr>
<tr>
<td>Sodium nitrite</td>
<td>7632-00-0</td>
<td>231-555-9</td>
<td>69.00</td>
<td>NaNO2</td>
<td>≤100%</td>
</tr>
<tr>
<td>Hydrochloric acid</td>
<td>7647-01-0</td>
<td>231-595-7</td>
<td>36.46</td>
<td>HCl</td>
<td>&lt;2%</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>215-185-5</td>
<td>40.00</td>
<td>NaOH</td>
<td>&lt;10%</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

Methoxy-PMS:

If inhaled: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In case of skin contact: Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.
Methoxy

SECTION 6: ACCIDENTAL RELEASE MEASURES

Special protective equipment for fire
Suitable extinguishing media:
Sodium hydroxide (NaOH):
Further information
Advice for firefighters
Special hazards arising from the substance or mixture:
Suitable extinguishing media
Sodium nitrite:
Further information
Special protective equipment for firefighters:
Special hazards arising from the substance or mixture:
Suitable extinguishing media
Sodium nitrate:
Further information:
Unsuitable Extinguishing Media:
HCl:
General advice Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5: FIRE-FIGHTING MEASURES

**Methoxy-PMS:**
Suitable extinguishing media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray. Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.
Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

**Sodium nitrate:**
Suitable extinguishing media: Dry powder Dry sand.
Special hazards arising from the substance or mixture: Sodium oxides, Not combustible.
Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.
Further information: Use water spray to cool unopened containers.

**Sodium nitrite:**
Suitable extinguishing media: Dry powder Dry sand
Special hazards arising from the substance or mixture: Nitrogen oxides (NOx), Sodium oxides
Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.
Further information: Use water spray to cool unopened containers.

**HCl:**
Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special hazards arising from the substance or mixture: Hydrogen chloride gas
Advice for firefighters Wear self-contained breathing apparatus for firefighting if necessary.
Further information No data available

**Sodium hydroxide (NaOH):**
Condition of flammability: Not flammable or combustible.
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.
Hazardous combustion products: Hazardous combustion products formed under fire conditions— carbon oxides, nitrogen oxides.

SECTION 6: ACCIDENTAL RELEASE MEASURES

**Methoxy-PMS:**
SAFETY DATA SHEET
SDS DATE: January 14, 2021

Personal precautions: Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

Environmental precautions: Take steps to avoid release into the environment, if safe to do so.

Methods for cleaning up: Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

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**Sodium nitrate:**

**Personal precautions:** Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up:** Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

---

**Sodium nitrite:**

**Personal precautions:** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

**Conditions for safe storage:** Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

---

**Sodium hydroxide (NaOH):**

**Personal precautions:** Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up:** Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.

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**SECTION 7: HANDLING AND STORAGE**

**Methoxy-PMS:**

**Precautions for safe handling:** Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.

**Conditions for safe storage:** Keep container tightly closed. Store in accordance with information listed on the product insert.

---

**Sodium nitrate:**

**Precautions for safe handling:** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

**Conditions for safe storage:** Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

---

**Sodium nitrite:**

**Precautions for safe handling:** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

**Conditions for safe storage:** Keep container tightly closed in a dry and well-ventilated place. Hygroscopic Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

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**HCl:**

**Handling:** Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

**Storage:** Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

**Sodium hydroxide (NaOH):**

**Precautions for safe handling:** Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

**Conditions for safe storage:** Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Recommended storage temperature: -20 °C.
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
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.

Hygiene measures
Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product.

Environmental exposure controls
Keep the product away from drains, water courses or the soil. Clean spillages in a safe way as soon as possible.

Sodium nitrate:

Control parameters
Components with limit values that require monitoring at the workplace:
Contains no substances with occupational exposure limit values.

Exposure controls
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type 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).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Control of environmental exposure
Do not let product enter drains. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with the eyes and skin.
SAFETY DATA SHEET
SDS DATE: January 14, 2021

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU)

**Skin and 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.

**Control of environmental exposure**
Do not let product enter drains. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with the eyes and skin.

---

### Sodium hydroxide (NaOH):

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) – Table Z-1 – Limits for Air Contaminants</td>
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<td></td>
<td></td>
<td>C</td>
<td>2 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Eye, skin, &amp; Upper Respiratory Tract irritation</td>
<td></td>
<td>C</td>
<td>1 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
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### HCl:

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCl</td>
<td>1310-73-2</td>
<td>CEIL</td>
<td>2 mg/m³</td>
<td>USA. ACGIH Threshold Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>2 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td>TWA</td>
<td>2 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
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</tr>
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<td></td>
<td></td>
<td></td>
</tr>
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<td>Eye, skin, &amp; Upper Respiratory Tract irritation</td>
<td></td>
<td>C</td>
<td>1 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
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<td></td>
<td></td>
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<tr>
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<td></td>
</tr>
</tbody>
</table>

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### Personal protective equipment

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and 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.

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

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### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Methoxy-PMS</th>
<th>Sodium nitrate</th>
<th>Sodium nitrite</th>
<th>HCl</th>
<th>NaOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Solid</td>
<td>Solid</td>
<td>Solid</td>
<td>Light yellow liquid</td>
<td>Colorless liquid</td>
</tr>
<tr>
<td>pH:</td>
<td>No data available</td>
<td>5.5 - 8.0 a</td>
<td>9 at 100 g/l at 20 °C</td>
<td>&lt; 1 at 20 °C</td>
<td>14</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>No data available</td>
<td>874 g/l at 20 °C</td>
<td>820 g/l at 20 °C</td>
<td>soluble</td>
<td>completely miscible, soluble</td>
</tr>
<tr>
<td>Other Solubility:</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point (°C):</td>
<td>No data available</td>
<td>380 °C 716 °F</td>
<td>320 °C 608 °F</td>
<td>&gt; 100 °C - lit.</td>
<td>105 - 140 °C 221 - 284 °F</td>
</tr>
<tr>
<td>Melting Point (°C):</td>
<td>No data available</td>
<td>308 °C (586 °F)</td>
<td>271 °C (520 °F)</td>
<td>-30 °C</td>
<td>-12 - 10 °C (10 - 50 °F)</td>
</tr>
<tr>
<td>Flash Point (°C):</td>
<td>No data available</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition Temperature (°C):</td>
<td>No data available</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>No data available</td>
</tr>
<tr>
<td>Density:</td>
<td>No data available</td>
<td>2.26 g/cm³ at 20 °C</td>
<td>2.1 g/cm³ at 20 °C</td>
<td>1.2 g/cm³ at 25 °C</td>
<td>1.38 - (Air = 1.0)</td>
</tr>
</tbody>
</table>
SECTION 10: STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Methoxy-PMS</th>
<th>Sodium nitrate</th>
<th>Sodium nitrite</th>
<th>HCl</th>
<th>NaOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability:</td>
<td>Stable under recommended storage conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conditions to avoid:</td>
<td>Not data available</td>
<td>Fusion of mixtures of metal cyanides, including lead thiocyanate, with metal chlorates, perchlorates, nitrates or nitrles causes a violent explosion.</td>
<td>Exposure to moisture</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Materials to avoid:</td>
<td>Oxidizing agents</td>
<td>Strong acids, Strong reducing agents, Powdered metals, Organic materials, Alkali metals, Alkaline earth metals, Cyanides, thiocyanates</td>
<td>Acids, Powdered metals, Ammonia, Cyanides, Amines, Activated carbon</td>
<td>Bases, Amines, Alkali metals, Metals, permanganates, for example potassium permanganate, Fluorine, metal acetylides, hexalithium disilicide</td>
<td>Acids, Organic materials, Chlorinated solvents, Aluminum, Phosphorus, Tin/tin oxides, Zinc</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>carbon dioxide, carbon monoxide, nitrogen oxides sulfur oxides</td>
<td>Sodium oxides</td>
<td>Nitrogen oxides (NOx), Sodium oxides</td>
<td>Hydrogen chloride gas (fire condition)</td>
<td>Sodium oxides (fire condition)</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

**Methoxy-PMS:**
- **Acute toxicity:** no data available
- **Skin corrosion/irritation:** no data available
- **Serious eye damage/eye irritation:** No data available
- **Respiratory or skin sensitzation:** no data available
- **Germ cell mutagenicity:** no data available

**Carcinogenicity:** Limited evidence of carcinogenicity in animal studies
- **IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- **ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- **NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- **OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:** no data available

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

**Synergistic effects:** no data available

**Additional information:** RTECS: no data available

**Sodium nitrate:**
- **Acute toxicity:**
  - LD50 Oral - Rat - male and female - 3,430 mg/kg (OECD Test Guideline 401)
  - LD50 Dermal - Rat - male and female - > 5,000 mg/kg (OECD Test Guideline 402)
- **Skin corrosion/irritation:** Skin – Rabbit Result: No skin irritation - 4 h (OECD Test Guideline 404) Remarks: (in analogy to similar products)
- **Serious eye damage/eye irritation:** Eyes – Rabbit Result: irritating (OECD Test Guideline 405)
- **Respiratory or skin sensitzation:** Local lymph node assay (LLNA) – Mouse Result: negative (OECD Test Guideline 429)
- **Germ cell mutagenicity:** Mutagenicity (mammal cell test): chromosome aberration. Human lymphocytes Result: negative
  - Mutagenicity (mammal cell test): chromosome aberration. Chinese hamster fibroblasts Result: positive (ECHA) Ames test Salmonella typhimurium Result: negative
- **Carcinogenicity:**
  - **IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
  - **ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
  - **NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.

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SODIUM NITRITE:

**Acute toxicity:** LD50 Oral - Rat - 157.9 mg/kg  LC50 Inhalation - Rat - 4 h - 5.5 mg/l  Remarks: (RTECS) Dermal: No data available

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

**Serious eye damage/eye irritation:** Eyes - Rabbit  Result: Moderate eye irritation  (OECD Test Guideline 405)

**Respiratory or skin sensitization:** no data available

**Germ cell mutagenicity:** No data available

**Carcinogenicity:**
- IARC: 2A - Group 2A: Probably carcinogenic to humans (Sodium nitrite)
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:**

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:**

**Additional information:**

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:**

**Additional information:**

**IARC:**
- Carcinogenicity: Based on Human Evidence
- Carcinogenic to humans (Sodium nitrite)

**ACGIH:**
- No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**NTP:**
- No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP.

**OSHA:**
- No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Respiratory or skin sensitization:** Will not occur

**Germ cell mutagenicity:** no data available

**Carcinogenicity:**
- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:**

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:**

**Synergistic effects:** no data available

**Sodium hydroxide (NaOH):**

**Acute toxicity:** no data available
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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:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: no data available
Teratogenicity: no data available
Specific target organ toxicity – single exposure (GHS): no data available
Specific target organ toxicity – repeated exposure (GHS): no data available

Potential Health Effects
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin: May be harmful if absorbed through skin. Causes skin burns.
Eyes: Causes severe eye burns.
Ingestion: May be harmful if swallowed.

Signs and Symptoms of Exposure: Exposure may cause a burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema. Material is extremely destructive tissue of the mucous membranes and upper respiratory tract, eyes, and skin

SECTION 12: ECOLOGICAL INFORMATION

Methoxy-PMS:
Persistence and degradability: no data available
Toxicity: no data available
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: no data available

Sodium nitrate:
Persistence and degradability: No data available
Toxicity: Toxicity to daphnia and other aquatic invertebrates EC50: Daphnia magna (Water flea) - 3,581 mg/l - 48 h Remarks: (IUCLID)
Toxicity to algae static test EC50 - diatoms: > 1,700 mg/l - 10 Days Remarks: (in analogy to similar products)
Toxicity to bacteria static test EC50 - activated sludge: > 1,000 mg/l - 3 h (OECD Test Guideline 209)
Bioaccumulative potential: No data available
Mobility in soil: No data available
PBT and vPvB assessment: No data available
Other adverse effects: No data available

Sodium nitrite:
Persistence and degradability: no data available
Toxicity: Toxicity to daphnia and other aquatic invertebrates static test - Daphnia magna (Water flea) - 15.4 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae NOEC - Desmodesmus subsipicus (green algae) - 100 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria static test EC50 - activated sludge: 510 mg/l - 3 h (OECD Test Guideline 209)
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: no data available
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

HCl:
Persistence and degradability: no data available
Toxicity: Toxicity to fish LC50 - Gambusia affinis (Mosquito fish) - 282 mg/l - 96 h (Hydrochloric Acid) Remarks: (IUCLID)
Bioaccumulative potential: no data available
Mobility in soil: no data available
PBT and vPvB assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life. Harmful effect due to pH shift. Discharge into the environment must be avoided.

Sodium hydroxide (NaOH):
Persistence and degradability: no data available
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Toxicity: no data available  
Bioaccumulative potential: no data available  
Mobility in soil: no data available  
PBT and vPvB assessment: no data available  
Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life

SECTION 13: DISPOSAL CONSIDERATIONS

Methoxy-PMS:  
Product: Dispose substance in accordance with prevailing country, federal, state and local regulations.  
Contaminated packaging: Conduct recycling or disposal in accordance with prevailing country, federal, state and local regulations.

Sodium nitrate:  
Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Contact a licensed professional waste disposal service to dispose of this material.  
Contaminated packaging: Dispose of as unused product.

Sodium nitrite:  
Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Contact a licensed professional waste disposal service to dispose of this material. 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.

HCl:  
Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.  
Contaminated packaging: Dispose of as unused product

Sodium hydroxide (NaOH):  
Product: Observe all federal, state, and local environmental regulations.  
Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Methoxy-PMS:  
DOT (US): Not dangerous goods  
IMDG: Not dangerous goods.  
IATA: Not dangerous goods

Sodium nitrate:  
DOT (US): UN number: 1498  
Class: 5.1  
Packing group: III  
Proper shipping name: Sodium nitrate  
Reportable Quantity (RQ): Poison Inhalation Hazard: No  
IMDG: UN number: 1498  
Class: 5.1  
Packing group: III  
EMS-No: F-A, S-Q  
Proper shipping name: SODIUM NITRATE  
IATA: UN number: 1498  
Class: 5.1  
Packing group: III  
Proper shipping name: Sodium nitrate

Sodium nitrite:  
DOT (US): UN number: 1500  
Class: 5.1 (6.1)  
Packing group: III  
Proper shipping name: Sodium nitrite  
Reportable Quantity (RQ): 100 lbs Poison Inhalation Hazard: No  
IMDG: UN number: 1500  
Class: 5.1 (6.1)  
Packing group: III  
EMS-No: F-A, S-Q  
Proper shipping name: SODIUM NITRITE  
IATA: UN number: 1500  
Class: 5.1 (6.1)  
Packing group: III  
Proper shipping name: Sodium nitrite

HCl:  
DOT (US): UN number: 1823  
Class: 8  
Packing group: II  
Proper shipping name: HCl, solid  
Reportable Quantity (RQ): 1000 lbs Poison Inhalation Hazard: No  
IMDG: UN number: 1823  
Class: 8  
Packing group: II  
EMS-No: F-A, S-B  
Proper shipping name: HCL, SOLID  
Marine pollutant: No  
IATA: UN number: 1823  
Class: 8  
Packing group: II  
Proper shipping name: HCl, solid

Sodium hydroxide (NaOH):  
DOT (US): UN-Number: 1824, Class: 8, Packing group: II; Proper shipping name: Sodium hydroxide solution; Poison Inhalation Hazard: No  
IMDG: UN-Number: 1824, Class: 8, Packing group: II; EMS-No: F-A, S-B; Proper shipping name: SODIUM HYDROXIDE SOLUTION  
IATA: UN-Number: 1824, Class: 8, Packing group: II; Proper shipping name: Sodium hydroxide solution

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: SARA 302: No chemical in this material are subject to the reporting requirements of SARA Title III, Section 302.  
SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313: Sodium nitrate: CAS-No. 7631-99-4  
Revision Date 1993-04-24; Sodium nitrite CAS-No. 7632-00-0  
Revision Date 2007-07-01
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SARA 311/312 Hazards: Methoxy-PMS: Acute Health Hazard, Chronic Health Hazard; Sodium nitrate: Reactivity Hazard; Sodium nitrite: Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard; HCl, Acute Health Hazard; Sodium hydroxide: Acute Health Hazard

Massachusetts Right To Know Components: Sodium nitrate: CAS-No. 7631-99-4 Revision Date 1993-04-24; HCl, CAS-No. 1310-73-2; Revision Date: 2007-03-01; Sodium hydroxide, CAS-No. 1310-73-2; Revision Date: 2007-03-01

Pennsylvania Right To Know Components: Sodium nitrate: CAS-No. 7631-99-4 Revision Date 1993-04-24; Sodium nitrite CAS-No. 7632-00-0 Revision Date 2007-07-01; HCl, CAS-No. 1310-73-2; Revision Date: 2007-03-01; Sodium hydroxide, CAS-No. 1310-73-2; Revision Date: 2007-03-01

New Jersey Right To Know Components: Sodium nitrate: CAS-No. 7631-99-4 Revision Date 1993-04-24; HCl, CAS-No. 1310-73-2; Revision Date: 2007-03-01; Sodium hydroxide, CAS-No. 1310-73-2; Revision Date: 2007-03-01

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

EU regulations:

<table>
<thead>
<tr>
<th>Component</th>
<th>Risk Phrases</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methoxy-PMS</td>
<td>R22, R21, R36, R45</td>
<td>S24/25, S36/37/39</td>
</tr>
<tr>
<td>Sodium nitrate</td>
<td>R8, R22, R36/37/38</td>
<td>S17, S26</td>
</tr>
<tr>
<td>Sodium nitrite</td>
<td>R8, R25, R50</td>
<td>S45, S61</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>R35, R41, R52</td>
<td>S22, S36/37/39, S45, S61</td>
</tr>
</tbody>
</table>

SECTION 16: OTHER INFORMATION

DISCLAIMER:
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioVision, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.