1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Bradford Reagent
Product Number: B6916
Brand: Sigma
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Corrosive

Target Organs
Liver, Blood, Bone marrow, Eyes, Kidney, Heart, Central nervous system

GHS Classification
Acute toxicity, Oral (Category 5)
Acute toxicity, Inhalation (Category 3)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Specific target organ toxicity - single exposure (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger
Hazard statement(s)
H303  May be harmful if swallowed.
H314  Causes severe skin burns and eye damage.
H331  Toxic if inhaled.
H370  Causes damage to organs.

Precautionary statement(s)
P260  Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280  Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310  Immediately call a POISON CENTER or doctor/ physician.

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

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

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms  Coomassie™ dye binding protein assay, Protein dye reagent

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7664-38-2</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-633-2</td>
<td></td>
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<tr>
<td>Index-No.</td>
<td>015-011-00-6</td>
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</tr>
<tr>
<td></td>
<td>Skin Corr. 1B; H314</td>
<td>10 - 30 %</td>
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<tr>
<td>Methanol</td>
<td></td>
<td></td>
</tr>
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<td>CAS-No.</td>
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<tr>
<td>Index-No.</td>
<td>603-001-00-X</td>
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<tr>
<td></td>
<td>Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301, H311, H331, H370</td>
<td>1 - 5 %</td>
</tr>
</tbody>
</table>

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

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Oxides of phosphorus

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

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: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
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<tr>
<td>Phosphoric acid</td>
<td>7664-38-2</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Eye, skin, &amp; Upper Respiratory Tract irritation</td>
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<tr>
<td></td>
<td></td>
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<td></td>
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<td>Eye, skin, &amp; Upper Respiratory Tract irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
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<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>3 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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<tr>
<td></td>
<td></td>
<td>TWA</td>
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<td>USA. NIOSH Recommended Exposure Limits</td>
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<tr>
<td></td>
<td></td>
<td>ST</td>
<td>3 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
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<td>Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption</td>
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<td>STEL</td>
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<td></td>
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<td>Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption</td>
<td></td>
</tr>
</tbody>
</table>
### 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. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin 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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Appearance
- **Form**: liquid, clear
- **Colour**: no data available

#### Safety data
- **pH**: no data available
- **Melting point/freezing point**: no data available
- **Boiling point**: no data available
- **Flash point**: no data available
- **Ignition temperature**: no data available
- **Autoignition temperature**: no data available

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<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>STEL</th>
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<td><strong>Skin notation</strong></td>
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<tr>
<td><strong>TWA</strong></td>
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<td>250 ppm</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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<td><strong>260 mg/m3</strong></td>
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<td>325 mg/m3</td>
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<tr>
<td><strong>STEL</strong></td>
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<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
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<td><strong>200 ppm</strong></td>
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<td><strong>260 mg/m3</strong></td>
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<tr>
<td><strong>ST</strong></td>
<td>250 ppm</td>
<td>250 ppm</td>
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<tr>
<td><strong>325 mg/m3</strong></td>
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</tbody>
</table>

The value in mg/m3 is approximate.
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong bases, Powdered metals

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Oxides of phosphorus

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: 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 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 (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion Toxic if swallowed.

Skin Toxic if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

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: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
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

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

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1805  Class: 8  Packing group: III
Proper shipping name: Phosphoric acid solution
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1805  Class: 8  Packing group: III
Proper shipping name: PHOSPHORIC ACID SOLUTION
Marine pollutant: No

IATA
UN number: 1805  Class: 8  Packing group: III
Proper shipping name: Phosphoric acid, solution

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Corrosive

SARA 302 Components
SARA 302: No chemicals 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:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>

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

Massachusetts Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>7664-38-2</td>
<td>1993-04-24</td>
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</table>

Pennsylvania Right To Know Components

<table>
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<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tbody>
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<td>Water</td>
<td>7732-18-5</td>
<td>2007-07-01</td>
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<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>2007-07-01</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>7664-38-2</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tr>
<td>Phosphoric acid</td>
<td>7664-38-2</td>
<td>1993-04-24</td>
</tr>
</tbody>
</table>

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.

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3
| Acute Tox. | Acute toxicity |
| Flam. Liq. | Flammable liquids |
| H225      | Highly flammable liquid and vapour. |
| H301      | Toxic if swallowed. |
| H311      | Toxic in contact with skin. |
| H314      | Causes severe skin burns and eye damage. |
| H331      | Toxic if inhaled. |
| H370      | Causes damage to organs. |
| Skin Corr.| Skin corrosion |
| STOT SE   | Specific target organ toxicity - single exposure |

**Further information**

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