1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY / UNDERTAKING

Product name: YSI 9612 Cadmium Column
Synonyms: None
Chemical characterization: Packed column
Manufacturer, importer, supplier: YSI Inc.
1700/1725 Brannum Lane
Yellow Springs, OH 45387
USA

EMERGENCY TELEPHONE NUMBER: (937) 767-7241

2. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS</th>
<th>Chemical Name</th>
<th>% Weight</th>
<th>ACGI H TWA</th>
<th>OSHA*</th>
<th>IARC*</th>
<th>NTP*</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-43-9</td>
<td>Cadmium</td>
<td>100</td>
<td>0.01 mg/m3 TWA; 0.002 mg/m3 TWA (respirable fraction)</td>
<td>0.2 mg/m3 TWA (dust); 0.1 mg/m3 TWA (fume)</td>
<td>Monograph 58, 1993 (evaluated as a group)</td>
<td>Known carcinogen</td>
</tr>
</tbody>
</table>

* IARC - Group 1 (Carcinogenic to humans)
* NTP - Report on Carcinogens - Known Carcinogens
* OSHA - Regulated Carcinogens

3. HAZARDS IDENTIFICATION

Emergency Overview
USE ALL NECESSARY PERSONAL PROTECTION WHEN HANDLING THIS MATERIAL.
If symptoms from exposure persist seek medical attention.

Eye Contact: Contact with eyes may cause irritation
Skin Contact: Contact with skin may cause irritation
Inhalation: Inhalation of this material may be fatal
Ingestion: Harmful if swallowed, may be fatal

General Advice: Danger! Exposure to this material could be fatal. May cause liver and kidney damage. Get medical attention if effects persist.
Properties Affecting Health: Cancer suspect agent. May cause reproductive and fetal effects
Principle Routes of Exposure: Absorption, inhalation, and ingestion

4. FIRST AID MEASURES

General Advice: If exposure symptoms persist, seek medical attention.
Skin Contact: Wash exposed areas with soap and water for 15 minutes. Remove contaminated clothing and wash them before wearing again. Seek medical attention if effects persists
Eye Contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. If eye irritation persists, seek medical attention.
Inhalation: Remove from exposure and move to fresh air immediately. Get medical attention immediately. If breathing is difficult give oxygen. Do not use mouth to mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as bag or mask.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or

MATERIAL SAFETY DATA SHEET – YSI 9612
Page 1 of 5
water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Notes to Physician**
- Treat symptomatically

**Protection of First-Aiders**
- Use necessary protective equipment

**Aggravated Medical Conditions**
- Users with skin conditions (eczema, psoriasis, etc), respiratory conditions (asthma, bronchitis, emphysema, etc), or with chemical sensitivities should take protective precautions.

## 5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Flash Point</th>
<th>NA</th>
</tr>
</thead>
</table>
| Suitable Extinguishing Media | Carbon dioxide (CO2)  
Water spray  
Dry chemical  
Alcohol-resistant foam |
| Extinguishing media which must not be used for safety reasons | No information available |

**Specific Hazards**
- Material can spontaneously ignite when exposed to air at normal or slightly elevated temperatures. Dust can be explosion hazard when exposed to heat or flame. Flammable solid, may burn rapidly with flare burning effect. May re-ignite after fire is extinguished.

**Special protective equipment for firefighters**
- As with any fire, wear self contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### Specific Methods

<table>
<thead>
<tr>
<th>NFPA (National Fire Protection Association)</th>
<th>Health=4 (high)</th>
<th>Reactivity=4</th>
<th>Fire=4</th>
<th>Special=4</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS (Hazardous Material Information System)</td>
<td>Health=4 (high)</td>
<td>Reactivity=4</td>
<td>Fire=4</td>
<td>Special=4</td>
</tr>
</tbody>
</table>

## 6. ACCIDENTAL RELEASE MEASURES

| Personal precautions | Use necessary personal protective equipment  
Ensure adequate ventilation, especially in confined areas |
|----------------------|-----------------------------------------------------|
| Environmental precautions | Should not be released into the environment  
Prevent product from entering drains |
| Methods for cleaning up | Ensure adequate ventilation  
Remove all sources of ignition  
Avoid dust formation  
Retrieve any useable product and store in properly marked containers. |

## 7. HANDLING AND STORAGE

### Handling

<table>
<thead>
<tr>
<th>Technical Measures / Precautions</th>
<th>Use only in areas provided with adequate ventilation.</th>
</tr>
</thead>
</table>
| Safe Handling Advice | • Wear personal protective equipment  
• Keep away form heat and flame  
• Fine dust dispersed in air may ignite |

### Storage

| Technical Measures / Precautions | • Keep containers tightly closed. Discard any material that may be contaminated.  
• Keep in properly labeled containers  
• Keep away from heat  
• Store in tightly closed container. Store in cool, dry, well ventilated area away from incompatible substances |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatible Products</td>
<td>• Avoid strong acids, and oxidizing agents.</td>
</tr>
</tbody>
</table>
### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| Engineering measures | • Ensure eyewash station is readily available  
  • Ensure adequate ventilation |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal protective equipment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Hand Protection</strong></td>
<td>• Wear appropriate protective gloves</td>
</tr>
<tr>
<td><strong>Eye protection</strong></td>
<td>• Wear tightly fitting safety goggles or safety glasses with side-shields</td>
</tr>
</tbody>
</table>
| **Respiratory Protection** | • Wear suitable respiratory equipment when ventilation is insufficient  
  • Ensure adequate ventilation before handling any chemical. |
| **Skin and Body Protection** | • Wear light weight protective clothing to protect exposed skin  
  • Chemical resistant apron |
| **Hygiene measures** | • Handle in accordance with good industrial hygiene and safety practice  
  • Keep away from food, drink and animal feeding material |
| **Environmental exposure controls** | • No information available |

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**General Information**
- **Form**: Solid, 12-20 mesh
- **Appearance**: Silver/white granules
- **Odor**: No information available

**Important Health Safety and Environmental Information**
- **Boiling Point / Range**: 765 °C
- **Flash Point**: No information available
- **Vapor Pressure**: 1mm Hg@394 °C
- **Water Solubility**: Insoluble
- **Specific Gravity**: 8.65

### 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th><strong>Stability</strong></th>
<th>• Stable under normal conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conditions to Avoid</strong></td>
<td>• Heat, flames and sparks</td>
</tr>
</tbody>
</table>
| **Hazardous Decomposition Products** | • When heated, possible nitrogen oxides (NOx) and hydrogen cyanide fumes emitted.  
  • Toxic cadmium oxide fumes |
| **Polymerization** | • Polymerization does not occur |

### 11. TOXICOLOGICAL INFORMATION

| **Skin Irritation** |  |
| **Eye Irritation** |  |
| **Inhalation** | • Inhalation of dust may cause irritation of respiratory tissue. |
| **Ingestion** | • Harmful if swallowed. Nausea, vomiting, diarrhea (detergent effects) |
| **Sensitization** |  |
| **Chronic Toxicity** | • Avoid repeated exposure |
| **Specific Effects** |  |
| **Carcinogenic Effects** | • Cancer agent suspect |
| **Mutagenic Effects** | • May cause reproductive and fetal effects |
| **Target Organ Effects** | • May cause liver and kidney damage |
| **LD50/ oral/ rat** | • 225 mg/Kg |
12. ECOLOGICAL INFORMATION

Ecotoxicity Effects

Component information

<table>
<thead>
<tr>
<th>CAS</th>
<th>Chemical Name</th>
<th>% Weight</th>
<th>ACGIH*</th>
<th>OSHA*</th>
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</thead>
<tbody>
<tr>
<td>7440-43-9</td>
<td>Cadmium</td>
<td>100</td>
<td>50 µg/m³</td>
<td>200 µg/m³</td>
</tr>
</tbody>
</table>

* ACGIH - Occupational Exposure Limits - TLV
* OSHA - TWA

Product Information

Aquatic Toxicity

No information available.

Other Information

Ozone Depletion Potential; ODP; (R-11=1) No information available.
Global Warming Potential (GWP) No information available.
Additional Ecological Information No information available
Mobility No information available.
Bioaccumulative Potential No information available.
Ecotoxicity Effects No information available
Aquatic Toxicity No information available.

13. DISPOSAL CONSIDERATIONS

Waste From Residues / Unused Products

• Dispose of in accordance with local regulations

Contaminated Packaging

• Dispose of in accordance with local regulations

14. TRANSPORT INFORMATION

DOT
UN-No
Proper shipping name
Packing group
Subsidiary Risk
Description

15. REGULATORY INFORMATION

U.S. Inventories

<table>
<thead>
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* ACGIH - Occupational Exposure Limits - TWA's

International Inventories

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<th>CAS</th>
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<th>% Weight</th>
<th>EUOED*</th>
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<tbody>
<tr>
<td>7440-43-9</td>
<td>Cadmium</td>
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<td>No information available</td>
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</tbody>
</table>

* EUOED - EU Occupational Exposure Directive (98/24/EC) Indicative Occupational Exposure Limit Values (IOELV)

16. OTHER INFORMATION

Literary Reference None.
Prepared By YSI, Inc.
End of Safety Data Sheet.