Nuclead Co., Inc.

Safety Data Sheet:

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Supersedes Date: 10/21/13

Section 1: Identification:

1.1. Product Identifier:
Antimonial Lead

Product Identification Numbers:

1.2. Recommended use and restrictions on use:

Recommended use:
Lead is used for batteries, weight and shielding applications as well as a moisture and radiation barriers in other applications.

1.3. Supplier's details:

Manufacture: Nuclead Co. Inc.
Address: 415 N Elm St. West Bridgewater, MA 02379
Telephone: 1-508-583-2699

1.4. Emergency telephone numbers:

1-508-583-2699

Section 2: Hazard identification:

2.1. Hazard classification:
Carcinogenicity: Category 2.
Acute Toxicity (oral): Category 3.
Reproductive Toxicity: Category IB.
Skin Sensitizer: Category I.
Specific Target Organ Toxicity (repeated exposure): Category 2.
Specific Target Organ Toxicity (single exposure): Category 2.

2.2. Label elements:
Signal word
Danger
Symbols:
Skull and crossbones, Exclamation mark, Health Hazard

Hazard Statements:
Toxic if swallowed.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
Suspected of causing cancer.

May cause damage to organs:
Nervous system

May cause damage to organs through prolonged or repeated exposure:
Blood or blood forming organs
Musculoskeletal system
Nervous system
Kidney/urinary tract
Sensory organs

Precautionary Statements:

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/fumes/gas/mist/vapors/spray.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash thoroughly after handling.
Contaminated work clothing must not be allowed out of the workplace.

Response:
If on skin: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
Rinse mouth.
If swallowed: Immediately call a poison center or doctor/physician.
If exposed or concerned: Get medical advice/attention.

Storage:
Store locked up.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Hazards not otherwise classified:
None.
Section 3: Composition/information on ingredients:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
<th>OSHA 8-HR TWA</th>
<th>ACGIH 8-HR TWA</th>
<th>ACGIH STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Balance</td>
<td>0.05mg/m³</td>
<td>0.15mg/m³</td>
<td>0.45mg/m³</td>
</tr>
<tr>
<td>Antimony</td>
<td>7440-36-0</td>
<td>5 – 6 %</td>
<td>0.5mg/m³</td>
<td>0.5mg/m³</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>7440-38-2</td>
<td>&lt;.0.3</td>
<td>0.01mg/m³</td>
<td>0.2mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

*(Ceiling limit)*

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

Section 4: First aid measures:

4.1. Description of first aid measures:

**Inhalation:**
Remove person to fresh air. If you feel unwell, get medical attention.

**Skin contact:**
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

**Eye contact:**
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

**If Swallowed:**
Rinse mouth. Get immediate medical attention.

4.1. Most important symptoms and effects, both acute and delayed:
See section 1.1. Information on toxicological effects.

4.2. Indication of any immediate medical attention and special treatment required:
Not applicable.

Section 5: Fire fighting measures:

5.1. Suitable extinguishing media:
Material will not burn. Use fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture:
None inherent in this product.

<table>
<thead>
<tr>
<th>Hazardous Decomposition or By-Products</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance Carbon monoxide Carbon</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Dioxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Oxides of Lead</td>
<td>During Combustion</td>
</tr>
</tbody>
</table>

5.3. Special protective action for fire-fighting:
No unusual fire or explosion hazards are anticipated.
Section 6: Accidental release measures:

6.1. Personal precautions, protective equipment and emergency procedures:
Evacuate area. Ventilate the area with fresh air. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions:
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up:
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

Section 7: Handling and storage:

7.1. Precautions for safe handling:
For industrial or professional use only. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, or skin on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (e.g. chlorine, chromic acid etc.) Use personal protective equipment (e.g. gloves, respirators...) as required.

7.2. Conditions for sale storage including any incompatibilities:
Store away from oxidizing agents.

Section 8: Exposure controls/personal protection:

8.1 Control Parameters:

Occupational exposure limits:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Agency</th>
<th>Limit type</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Amer Conf of Gov. Indust. Hyg.</td>
<td>TWA (as Pb):0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>US Dept of Labor - OSHA</td>
<td>TWA:0.05 mg/m³</td>
<td>29 CFR 1910.1025</td>
</tr>
<tr>
<td>Antimony</td>
<td>7440-36-0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>7440-38-2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Amer Confof Gov. Indust.Hyg.: American Conference of Governmental Industrial Hygienists
Chemical Manufacturer Rec. Guid.: Chemical Manufacturer’s Recommended Guidelines
US Dept of Labor - OSHA: United States of Labor- Occupational and Health Administration
TWA: Time-Weighted-Average STEL.:Short Term Exposure Limit: CEIL.: Ceiling

8.2. Exposure controls:

8.2.1. Engineering Controls:
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2 Personal protective equipment (PPE):
**Eye/face protection:**
Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
- Safety Glasses with side shields

**Skin/hand protection:**
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended: Polymer laminate

**Respiratory protection:**
An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
- Half face piece or full face piece air-purifying respirator suitable for organic vapors and particulates.

For questions about suitability for a specific application, consult with your respirator manufacturer.

**Section 9: Physical and chemical properties:**

9.1. **Information based on physical and chemical properties:**

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Physical Form</td>
<td>Solid</td>
</tr>
<tr>
<td>Odor, Color Grade</td>
<td>Silver color, slight smoke rubber odor</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point</td>
<td>No data</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No data</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No flash point</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid gas)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Flammable Limits (LEL)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable Limits (UEL)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility In Water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility-non-water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Volatile Organic Compounds</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Section 10: Stability and reactivity:

10.1. Reactivity:
This material may be reactive with certain agents under certain conditions – see the remaining headings in this section.

10.20 Chemical stability:
Stable.

10.3. Possibility of hazardous reactions:
Hazardous polymerization will not occur.

10.4. Conditions to avoid:
None known.

10.5. Incompatible materials:
Strong oxidizing agents.

10.6. Hazardous decomposition products:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>None known</td>
<td></td>
</tr>
</tbody>
</table>

Refer to section 5.2 for hazardous decomposition products during combustion.

Section 11: Toxicological information:

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or too signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects:

Sign and Symptoms of Exposure:

Base on test data and/or information on the components, this may produce the following health effects:

**Inhalation:**
No health effects are expected.

**Skin Contact:**
May be harmful if contact with skin.
Contact with the skin during product use is not expected to result in significant irritation. Allergic skin reaction (non-photo induced):
Signs/symptoms may include redness, swelling, blistering and itching.

**Eye Contact:**
Contact with eyes during product use is not expected to result in significant irritation.
Toxic if swallowed.

Gastrointestinal irritation: Signs/symptoms may include abdominal pain. Stomach upset, nausea, vomiting and diarrhea.

May cause target organ effects after ingestion.

Targets organs effects:
May accumulate in the body.

Single exposure may cause:
Neurological Effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and or changes in blood pressure and heart rate.

Prolonged or repeated exposure may cause:
Ocular Effects: Signs/symptoms may include blurred or significantly impaired vision.

Hard Tissue Effects: Signs/symptoms may include color changes in teeth and nails; changes in development of bone, teeth or nails, weakening of bones; and/or hair loss.

Hematopoietic Effects: Signs/symptoms may include generalized weakness, fatigue and alterations in numbers of circulating blood cells.

Neurological Effects: Signs/symptoms may include personality changes, lack of coordination sensory loss, tingling or numbness extremities, weakness, tremors, and/or changes in blood pressure and heart rate.

Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

Reproductive/Development Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Class Description</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Anticipate human carcinogen</td>
<td>National Toxicology Program Carcinogen</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Group 2B: Possible Human Care</td>
<td>International Agency for Research and cancer</td>
</tr>
</tbody>
</table>

Additional Information:
This product, when in use under reasonable conditions and in accordance with direction for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the products directions for use may affect the performance of the product and may present potential health and safety hazards.

Toxicological Data:

Acute Toxicity:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Route:</th>
<th>Value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall product</td>
<td>Dermal</td>
<td>Data not available or insufficient for classification calculated ATE 2,596.1mg/kg</td>
</tr>
<tr>
<td>Overall product</td>
<td>Ingestion</td>
<td>Data not available or insufficient for classification calculated ATE 104.9mg/kg</td>
</tr>
</tbody>
</table>

ATE = acute toxicity estimate

Skin Corrosion/Irritation:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Species:</th>
<th>Value:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>similar compounds</td>
<td>No significant irritation</td>
</tr>
</tbody>
</table>
### Serious Eye Damage/Irritation
- **Name:** Lead
- **Species:** similar compounds
- **Value:** Mild irritation

### Skin Sensitization
- **Name:** Lead
- **Species:** Data not available or insufficient for classification

### Respiratory Sensitization
- **Name:** Lead
- **Species:** Data not available or insufficient for classification

### Germ Cell Mutagenicity
- **Name:** Lead
- **Route:** In vivo
- **Value:** Some positive data exist, but the data are not sufficient for classification

### Carcinogenicity
- **Name:** Lead
- **Route:** Not Specified
- **Species:** official classification
- **Value:** Carcinogenic

### Reproductive Toxicity

#### Reproductive and/or Developmental Effect
- **Name:** Lead
- **Route:** Not Specified
- **Value:** Toxic to female reproduction
- **Species:** Human
- **Test Result:** LOAEL 10 ug/dl blood
- **Exposure Duration:** poisoning and/or abuse

- **Name:** Lead
- **Route:** Not Specified
- **Value:** Toxic to male reproduction
- **Species:** Human
- **Test Result:** LOAEL 37 ug/dl blood
- **Exposure Duration:** poisoning and/or abuse

- **Name:** Lead
- **Route:** Not Specified
- **Value:** Toxic to development
- **Species:** Human
- **Test Result:** NOAEL not available
- **Exposure Duration:**

### Target Organ:

#### Specific Target Organ Toxicity-single exposure
- **Name:** Lead
- **Route:** Ingestion
- **Target Organ:** Nervous system
- **Value:** May cause damage
- **Species:** Human
- **Test Results:** LOAEL 90 ug/dl blood
- **Exposure Duration:** poisoning and/or abuse

- **Name:** Lead
- **Route:** Ingestion
- **Target Organ:** Heart
- **Value:** Some positive data
- **Species:** Human
- **Test Results:** NOAEL not available
- **Exposure Duration:**

### Specific target organ toxicity – repeated exposure
- **Name:** Lead
- **Route:** Inhalation
- **Target Organ:** Kidney/bladder
- **Value:** May cause damage to organs through prolonged or repeated exposure
- **Species:** Human
- **Test Results:** LOAEL 60 ug/dl blood
- **Exposure Duration:** occupational exposure

- **Name:** Lead
- **Route:** Inhalation
- **Target Organ:** Hematopoietic system
- **Value:** May cause damage to organs through prolonged or repeated exposure
- **Species:** Human
- **Test Results:** LOAEL 50 ug/dl blood
- **Exposure Duration:** occupational exposure

- **Name:** Lead
- **Route:** Inhalation
- **Target Organ:** Nervous system
- **Value:** May cause damage to organs through prolonged or repeated exposure
- **Species:** Human
- **Test Results:** LOAEL 40 ug/dl blood
- **Exposure Duration:** occupational exposure

- **Name:** Lead
- **Route:** Inhalation
- **Target Organ:** Heart endocrine system immune system vascular system
- **Value:** Some positive data exists, but the data are not sufficient for classification
- **Species:** Human
- **Test Results:** NOAEL not available
- **Exposure Duration:** occupational exposure

- **Name:** Lead
- **Route:** Ingestion
- **Target Organ:** Bone, teeth, nails and/or hair
- **Value:** May cause damage to organs through prolonged or repeated exposure
- **Species:** Rat
- **Test Results:** LOAEL 20 ug/dl blood
- **Exposure Duration:** 3 months
**Lead Ingestion**

**Eyes**  
May cause damage to organs through prolonged or repeated exposure  
**Rat LOAEL 5 mg/kg/day 20 days**

**Lead Ingestion**  
**Hematopoietic system, kidney and/or bladder**  
May cause damage to organs through prolonged or repeated exposure  
**Human LOAEL 40 ug/dl blood Environmental exposure**

**Lead Ingestion**  
**Nervous system**  
May cause damage to organs through prolonged or repeated exposure  
**Human LOAEL 11 ug/dl blood Environmental exposure**

**Lead Ingestion**  
**Auditory system heart, endocrine system, vascular system**  
Some positive data exists, but the data are not sufficient for classification  
**Human NOAEL not available Environmental exposure**

**Aspiration Hazard:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Not an aspiration hazard</td>
</tr>
</tbody>
</table>

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information.

**Section 12: Ecological information:**

Ecological information:  
Please contact the address or phone number listed on the first page of the SDS for additional toxicological information.

**Section 13: Disposal considerations:**

**13.1. Disposal methods:**  
Dispose of contents/container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility.

**EPA Hazard waste number (RCRA):**  
DOO8 (Lead)

**Section 14: Transport Information:**

For transport information, please call 508-583-2699.

**Section 15: Regulatory information:**

**15.1. US Federal Regulations**  
Contact Nuclead for more info.

**311/312 Hazard Categories:**

Fire hazard – No  Pressure Hazard – No  Reactivity Hazard – No  Immediate Hazard – Yes  Delayed Hazard - Yes

**Section 313 Toxic chemical subject to reporting requirements of that section and 40 CFR part 372 (EPCRA):**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Trade secret 90-99</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>90 – 99</td>
</tr>
</tbody>
</table>

**15.2. State Regulations:**  
Contact Nuclead Co.
California Proposition 65:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Female reproductive toxin</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Male reproductive toxin</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>Developmental toxin</td>
</tr>
</tbody>
</table>

Warning: This product contains a chemical known to the state of California to cause defects or other reproductive harm.

Warning: This product contains a chemical known to the state of California to cause cancer.

15.3. Chemical Inventories:
This product is an article as defined by TSCA regulations, and is exempt from TSCA inventory listing requirements.

Contact Nuclead Co. for more information

15.4. International Regulations
Contact Nuclead Co. for more information

This SDS has been prepared to meet the US OSHA Hazard Communication Standard, 29 1910.1200.

Section 16: Other information:

NFPA Hazard Classification:
Health: 2 Flammability: 0 Instability: 0 Special Hazards: None

Nation fire protection association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are present by short term, acute exposure to a material under conditions of fire, spill or similar emergencies. Hazard ratings primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

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Issue Date: 10-25-2013 Supersedes Date 10-21-2013

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