Date of Issue:
27 May 2014

# SAFETY DATA SHEET

## 1. SUBSTANCE AND SOURCE IDENTIFICATION

**Product Identifier**

**SRM Number:** 2710a
**SRM Name:** Montana I Soil
Highly Elevated Trace Element Concentrations
**Other Means of Identification:** Not applicable.

**Recommended Use of This Material and Restrictions of Use**

This Standard Reference Material (SRM) is intended primarily for use in the analysis of soils, sediments, or other materials of a similar matrix. One unit of SRM 2710a consists of 50 g of the dried, powdered soil, blended with lead oxide.

**Company Information**

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Standard Reference Materials Program
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1-800-424-9300 (North America)
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## 2. HAZARDS IDENTIFICATION

**Classification**

**Physical Hazard:** Not classified.
**Health Hazard:** Carcinogen – Category 1B
Reproductive Toxicity – Category 1A
Specific Target Organ Toxicity, Repeated Exposure – Category 2

**Label Elements**

**Symbol:**

**Signal Word:** DANGER

**Hazard Statement(s):**

| | |
|---|---|
| H350 | May cause cancer. |
| H360 | May damage fertility or the unborn child. |
| H373 | May cause damage to organs (nervous system, kidneys, liver, blood) through prolonged or repeated exposure. |

**Precautionary Statement(s):**

| | |
|---|---|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P260 | Do not breathe dust. |
| P264 | Wash hands thoroughly after handling. |
| P270 + P271 | Do not eat, drink or smoke when using this product. |
| P280 | Wear protective gloves, protective clothing, and eye protection. |

P308 + P313 If exposed or concerned: Get medical attention.

P405 Store locked up.

P501 Dispose of contents and container in accordance with local regulations.

**Hazards Not Otherwise Classified:** Not applicable.

**Ingredients(s) with Unknown Acute Toxicity:** Not applicable.

## 3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

**Substance:** Contaminated Soil

**Other Designations:** Not applicable.

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis. .

| Hazardous Component(s) | CAS Number | EC Number (EINECS) | Nominal Mass Concentration (%) |
|---|---|---|---|
| Contaminated Soil | Not available | Not available | 100 |
| **Individual Constituent(s)** | | | |
| Lead oxide | 1317-36-8 | 215-267-0 | 0.55 |

## 4. FIRST AID MEASURES

**Description of First Aid Measures:**

**Inhalation:** If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

**Skin Contact:** Wash skin with soap and water for at least 15 minutes. If necessary, seek medical attention.

**Eye Contact:** Flush eyes with water for at least 15 minutes. If necessary, seek medical attention.

**Ingestion:** If a large amount is swallowed, seek medical attention.

**Most Important Symptoms/Effects, Acute and Delayed:** Cancer, birth defects, reproductive effects.

**Indication of any immediate medical attention and special treatment needed, if necessary:** If any of the above symptoms are present or suspected, seek medical attention if needed.

## 5. FIRE FIGHTING MEASURES

**Fire and Explosion Hazards:** Negligible fire hazard. See Section 9, "Physical and Chemical Properties" for flammability properties.

**Extinguishing Media:**
Suitable: Use extinguishing media appropriate for the surrounding area.
Unsuitable: None listed.

**Specific Hazards Arising from the Chemical:** None listed.

**Special Protective Equipment and Precautions for Fire-Fighters:** Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

**NFPA Ratings** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 0 Reactivity = 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures:** Keep unnecessary personnel away. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

**Methods and Materials for Containment and Clean up:** Notify safety personnel of spills. Collect spilled material in appropriate container for disposal. Isolate hazard area and deny entry.

## 7. HANDLING AND STORAGE

**Safe Handling Precautions:** Avoid generating dust. See Section 8, "Exposure Controls and Personal Protection".

**Storage:** Store and handling in accordance with all current regulations and standards.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Exposure Limits:**

OSHA (PEL): 30 µg/m$^3$ (Action Level, see 29 CFR 1910.1025, as Pb)
5 mg/m$^3$ TWA (See 29 CFR 1910.1025, as Pb)

ACGIH (REL): 0.05 mg/m$^3$ TWA (as Pb, related Lead compounds)

NIOSH (REL): 0.05 mg/m$^3$ TWA (as Pb, related Lead compounds)

NIOSH (REL): 100 mg/m$^3$ IDLH (as Pb, related Lead compounds)

**Engineering Controls:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**Personal Protection:** In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

**Respiratory Protection:** If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

**Eye/Face Protection:** Wear splash resistant safety goggles with a face shield. An eyewash station should be readily available near areas of use.

**Skin and Body Protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| **Descriptive Properties:** | **Contaminated Soil** | **Lead oxide 0.55 %** |
|---|---|---|
| **Appearance (physical state, color, etc.):** | powder | not applicable |
| **Molecular Formula:** | not applicable | PbO |
| **Molar Mass (g/mol):** | not applicable | 223.22 |
| **Odor:** | not available | odorless |
| **Odor threshold:** | not available | not available |
| **pH:** | not available | not available |
| **Evaporation rate:** | not available | not applicable |
| **Melting point/freezing point (ºC):** | not available | 886 (1627 ºF) |
| **Relative Density (g/L):** | not available | 10 (relative to water) |
| **Vapor Pressure (mmHg):** | not available | not applicable |
| **Vapor Density (air = 1):** | not available | not applicable |
| **Viscosity (cP):** | not available | not applicable |
| **Solubility(ies):** | not available | water 0.0017 %, alkali, nitric acid, acetic acid, ammonium chloride solutions. |
| **Partition coefficient (n-octanol/water):** | not available | not available |
| **Particle Size:** | < 74 µm | not available |

| Thermal Stability Properties: | Contaminated Soil | Lead oxide 0.55 % |
|---|---|---|
| **Autoignition Temperature (ºC):** | not applicable | not available |
| **Thermal Decomposition (ºC):** | not applicable | not available) |
| **Initial boiling point and boiling range (ºC):** | not applicable | not available |
| **Explosive Limits, LEL (Volume %):** | not applicable | not available |
| **Explosive Limits, UEL (Volume %):** | not applicable | not available |
| **Flash Point (ºC)** | not applicable | not available |
| **Flammability (solid, gas):** | not applicable | not available |

## 10. STABILITY AND REACTIVITY

**Reactivity:** Stable at normal temperatures and pressure.

**Stability:** X Stable _____ Unstable

**Possible Hazardous Reactions:** No data available.

**Conditions to Avoid:** Avoid generating dust. Keep out of water supplies and sewers.

**Incompatible Materials:** Metal carbide, metals, combustible materials, halo carbons, reducing agents, acids, metal salts, metal oxides.

**Fire/Explosion Information:** See Section 5, "Fire Fighting Measures".

**Hazardous Decomposition:** Oxides of lead and carbon.

**Hazardous Polymerization:** _____ Will Occur X Will Not Occur

## 11. TOXICOLOGICAL INFORMATION

**Route of Exposure:** X Inhalation X Skin _____ Ingestion

**Symptoms Related to the Physical, Chemical and Toxicological Characteristics:** Fatigue, weakness, anorexia, anemia, jaundice, encephalopathy.

**Potential Health Effects (Acute, Chronic and Delayed):**

**Inhalation:** Absorption of large amounts of lead may cause a metallic taste, thirst, a burning sensation in the mouth and throat, salivation, abdominal pain with severe colic, vomiting, diarrhea of black or bloody stools, constipation, and fatigue. Chronic exposure to lead compounds may result in accumulation in body tissues resulting in adverse effects on the blood, nervous system, heart, kidneys, endocrine and reproductive systems. Lead has been shown to cause cancer and birth defects.

**Skin Contact:** No toxicity data available; dust may result in mechanical irritation.

**Eye Contact:** No toxicity data available; dust may cause mechanical irritation.

**Ingestion:** Absorption of large amounts of lead from the intestinal tract may cause effects as detailed in acute inhalation. The fatal dose of absorbed lead is approximately 0.5 grams. Lead is a cumulative toxin and repeated exposures can cause high levels to build up. Over exposure to lead, or lead compounds either through acute or chronic exposure, can result in severe damage to the nervous system, urinary system, and reproductive system. Lead has been shown to cause cancer and birth defects.

**Numerical Measures of Toxicity:**

**Acute Toxicity:** Not classified.
Lead: Rat Oral LD50: >10000 mg/kg

**Skin Corrosion/Irritation:** Not classified; no data available.

**Serious Eye damage/ Eye irritation:** Not classified; no data available.

**Respiratory Sensitization:** Not classified; no data available.

**Skin Sensitization:** Not classified; no data available.

**Germ Cell Mutagenicity:** Not classified; no data available.

**Carcinogenicity:** Category 1B

**Listed as a Carcinogen/Potential Carcinogen** ___X___ Yes _____ No

NTP lists lead compounds as "reasonably anticipated to be human carcinogens".
IARC lists inorganic lead compounds in Group 2A (probably carcinogenic to humans). Lead is not listed by OSHA.

**Reproductive Toxicity:** Category 1A; lead crosses the placenta and may affect the fetus causing birth defects, mental retardation, behavioral disorders, and death during the first year of childhood.
Lead: Oral Mouse TDLo: 4099.2 mg/kg

**Specific Target Organ Toxicity, Single Exposure:** Not classified; no data available.

**Specific Target Organ Toxicity, Repeated Exposure:** Category 2; lead can accumulate in body tissues.

**Aspiration Hazard:** Not applicable.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity Data:**

Lead oxide Fish Toxicity: Fathead minnow (*Pimephales promelas*) LC50 (static): 0.298 mg/L (96 h).

**Persistence and Degradability:** No data available.

**Bioaccumulative Potential:** No data available.

**Mobility in Soil:** No data available.

**Other Adverse effects:** No data available.

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal:** Dispose of waste in accordance with all applicable federal, state, and local regulations. Hazardous Waste Number(s): D008 for lead. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level of 5.0 mg/L.

## 14. TRANSPORTATION INFORMATION

**U.S. DOT and IATA:** Not regulated by DOT or IATA.

## 15. REGULATORY INFORMATION

**U.S. Regulations:**

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

| | |
|---|---|
| ACUTE HEALTH: | No. |
| CHRONIC HEALTH: | Yes. |
| FIRE: | No. |
| REACTIVE: | No. |
| PRESSURE: | No. |

**State Regulations:**

California Proposition 65:

WARNING! This product contains a chemical (lead) known to the state of California to cause cancer and reproductive/developmental effects.

**U.S. TSCA Inventory:** Lead oxide is listed.

**TSCA 12(b), Export Notification:** Not listed.

**Canadian Regulations:**
WHMIS Information: Not provided for this material.

## 16. OTHER INFORMATION

**Issue Date:** 27 May 2014

**Sources:** ChemAdvisor, Inc., MSDS *Lead Oxide*, 21 March 2014.

CDC; NIOSH; *NIOSH Pocket Guide to Chemical Hazards*; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Safety and Health; *Particulates Not Otherwise Regulated*, 4 April 2011; available at http://www.cdc.gov/niosh/npg/npgd0480.html (accessed Apr 2014).

**Key of Acronyms:**

| | | | |
|---|---|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists | NRC | Nuclear Regulatory Commission |
| ALI | Annual Limit on Intake | NTP | National Toxicology Program |
| CAS | Chemical Abstracts Service | OSHA | Occupational Safety and Health Administration |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | PEL | Permissible Exposure Limit |
| CFR | Code of Federal Regulations | PNOR | Particulates Not Otherwise Regulated |
| DOT | Department of Transportation | RCRA | Resource Conservation and Recovery Act |
| EC50 | Effective Concentration, 50 % | REL | Recommended Exposure Limit |
| EINECS | European Inventory of Existing Commercial Chemical Substances | RM | Reference Material |
| EPCRA | Emergency Planning and Community Right-to-Know Act | RQ | Reportable Quantity |
| IARC | International Agency for Research on Cancer | RTECS | Registry of Toxic Effects of Chemical Substances |
| IATA | International Air Transportation Agency | SARA | Superfund Amendments and Reauthorization Act |
| IDLH | Immediately Dangerous to Life and Health | SCBA | Self-Contained Breathing Apparatus |
| LC50 | Lethal Concentration, 50 % | SRM | Standard Reference Material |
| LD50 | Lethal Dose, 50 % | STEL | Short Term Exposure Limit |
| LEL | Lower Explosive Limit | TLV | Threshold Limit Value |
| MSDS | Material Safety Data Sheet | TPQ | Threshold Planning Quantity |
| NFPA | National Fire Protection Association | TSCA | Toxic Substances Control Act |
| NIOSH | National Institute for Occupational Safety and Health | TWA | Time Weighted Average |
| NIST | National Institute of Standards and Technology | UEL | Upper Explosive Limit |
| | | WHMIS | Workplace Hazardous Materials Information System |

**Disclaimer:** Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at http://www.nist.gov/srm.