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## 1. Product and Company Identification

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Trade Name: Lead Zirconium Titanium Oxide  
Chemical Formula:  $\text{PbZrTiO}_3$   
Recommended Use: Scientific research and development

Manufacturer/Supplier: Heeger Materials Inc.

230 Steele St Denver, CO 80206  
United States  
1-833-222-8587

24-Hour Emergency Contact: 800-424-9300 (US & Canada)  
+1-703-527-3887 (International)

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## 2. Hazards Identification

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Signal Word: Danger



Hazard Statements:

H302+H332: Harmful if swallowed or if inhaled  
H350: May cause cancer  
H361: Suspected of damaging fertility or the unborn child  
H373: May cause damage to organs through prolonged or repeated exposure

Precautionary Statements:

P202: Do not handle until all safety precautions have been read and understood  
P260: Do not breathe dust/fume/gas/mist/vapors/spray  
P264: Wash hands, face and any exposed skin thoroughly after handling  
P270: Do not eat, drink or smoke when using this product  
P271: Use only outdoors or in a well-ventilated area  
P281: Use personal protective equipment as required  
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P308+P313: IF exposed or concerned: Get medical advice/attention  
P405: Store locked up  
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	2
Flammability:	0
Physical:	0

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### 3. Composition

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Chemical Family: Inorganic Material  
Additional Names: Lead Zirconate Titanate

Lead Zirconium Titanium Oxide (PbZrTiO<sub>3</sub>):

Percentage: 100 wt%  
CAS #: 12626-81-2  
EC #: 235-727-4

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### 4. First Aid Procedures

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General Treatment: Seek medical attention if symptoms persist.  
Special Treatment: None  
Important Symptoms: Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Remove victim to fresh air. Supply oxygen if breathing is difficult.  
Inhalation: Give one to two glasses of water. Never induce vomiting or give anything by mouth to an unconscious person.  
Ingestion: Wash affected area with mild soap and water. Remove any contaminated clothing.  
Skin: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing  
Eyes:

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### 5. Firefighting Measures

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Flammability: Non-flammable, except as powder  
Extinguishing Media: Use water spray, CO<sub>2</sub>, dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers  
Spec. Fire Fighting Procedure: Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

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### 6. Accidental Release Measures

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If Material Is Released/Spilled: Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.  
Environmental Precautions: Isolate runoff to prevent environmental pollution.

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### 7. Handling and Storage

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Handling Conditions: Wash thoroughly after handling.  
Storage Conditions: Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.  
Work/Hygienic Maintenance: Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.  
Ventilation: Provide sufficient ventilation to maintain concentration at or below threshold limit.

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## 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits:	5 mg/m <sup>3</sup> as PbZrTiO <sub>3</sub> , long-term value 10 mg/m <sup>3</sup> as PbZrTiO <sub>3</sub> , short-term value
Threshold Limit Value:	0.05 mg/m <sup>3</sup> as PbZrTiO <sub>3</sub> , long-term value 10 mg/m <sup>3</sup> as PbZrTiO <sub>3</sub> , short-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

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## 9. Physical and Chemical Characteristics

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Color	White
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	N/A
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	394.29 g/mol

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## 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	Strong oxidizing agents
Incompatible Conditions:	Exposure to moist air or water. Keep away from open flames, hot surfaces and sources of ignition
Hazardous Decomposition Products:	Lead oxide, Titanium oxide, Zirconium oxide

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## 11. Toxicological Information

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Potential Health Effects:	
Eyes:	May cause irritation
Skin:	May cause irritation
Ingestion:	Harmful if swallowed
Inhalation:	Harmful if inhaled
Chronic:	N/A
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	May cause cancer. May cause damage to organs through prolonged or repeated exposure. May damage fertility or the unborn child
Median Lethal Dose:	N/A
Carcinogen:	Suspected of causing cancer ACGIH-A5

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## 12. Ecological Information

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Aquatic Toxicity:	Toxic
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	N/A

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## 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations.

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## 14. Transportation Data

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Hazardous:

Hazardous for transportation as powder only



Hazard Class:	6.1 Poisonous Materials
Packing Group:	III
UN Number:	UN3288
Proper Shipping Name:	Toxic solid, inorganic, n.o.s. (Lead Zirconium Titanium Oxide)

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## 15. Regulatory Information

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Sec 302 Extremely Hazardous:	N/A
Sec 304 Reportable Quantities:	N/A
Sec 313 Toxic Chemicals:	Yes

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## 16. Other Information

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This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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