

ENSIO RESOURCES, INC.
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Safety Data Sheet

SECTION I. Product Identification

Trade Name as Labeled: PATRIOT - BLAST Coal Slag Abrasives, ERI Roofing Granules

CAS Number: 68476-96-0

Common Name: Slag, Coal

Recommended Use: Abrasives and Roofing Granules

Restrictions on Use: Collect and properly dispose of spent abrasives.

24-HR Emergency Telephone: Chemtrec 800-424-9300

SECTION II. Hazards Identification

GHS CLASSIFICATIONS

Health Hazard: Not Classified

Environmental: Not Classified

Signal Word: Danger

Physical Hazard: Not Classified

Hazard Pictograms:



HNOC



GHS08

EMERGENCY OVERVIEW: *PATRIOT – BLAST* Coal Slag Abrasives are not flammable, combustible or explosive; and pose no known hazard in an unused condition. During use for abrasive blasting, dust may irritate the respiratory tract, skin and eyes; and may cause inflammation and pulmonary fibrosis. When used as an abrasive, use appropriate eye protection, wear suitable protective clothing, comply with OSHA Standard 29 CFR 1910 for respiratory protection.

SECTION III. Composition / Information on Ingredients

<u>Component</u>	<u>Typical Content (% wt)</u>	<u>CAS Number</u>
Silica, Amorphous (SiO ₂)	48%	7631-86-9
Aluminum Oxide (Al ₂ O ₃)	22%	1344-28-1
Iron Oxide (Fe ₂ O ₃)	20%	1309-37-1
Calcium Oxide (CaO)	4.8%	1305-78-8
Potassium Oxide (K ₂ O)	1.6%	12136-45-7
Titanium Dioxide (TiO ₂)	1.0%	13463-67-7
Magnesium Oxide (MgO)	0.9%	1309-48-4
Silica, Crystalline (SiO ₂)	≤0.1%	14808-60-7
Manganese (Mn)	0.004%	7439-96-5
Beryllium (Be)	0.0002%	7440-41-7

SECTION IV. First Aid Measures

Eye Contact: Immediately flush with water for at least 15 minutes. If irritation or redness persists, see a physician.

Skin Contact: Wash with soap and water if irritation is felt.

SECTION IV. First Aid Measures, Continued

- Inhalation:** Immediately remove person to a fresh air source.
Apply artificial respiration if breathing has stopped.
- Ingestion:** Rinse mouth with water. If discomfort persists, see a physician.

SECTION V. Fire Fighting Measures

Product is nonflammable, non-explosive and stable under normal conditions of use, storage and transportation. Use fire-extinguishing media that is appropriate for surrounding materials. Move product containers from fire area if it can be done without risk. Cool containers by flooding with water until heat is dissipated.

SECTION VI. Accidental Release Measures

Spill Response Procedures: *PATRIOT - BLAST* Coal Slag Abrasives are classified as non-hazardous. Sweep up spilled material and dispose in a sanitary landfill or industrial disposal site. Avoid generating dust. Wet methods and vacuuming are preferred.

SECTION VII. Handling and Storage

- General:** Avoid inhalation of dust and contact with skin and eyes. Use only with adequate ventilation. Use work methods that minimize dust production. Keep workplace clean. Observe good industrial hygiene practices.
- Handling:** Follow Safety Data Sheet and label precautions.
- Storage:** Keep container tightly closed. Store away from incompatible materials.

SECTION VIII. Exposure Controls / Personal Protection (PPE)

<u>Component</u>	<u>OSHA PEL (mg/m³)</u>	<u>ACGIH TLV (mg/m³)</u>	<u>Ontario OEL (mg/m³)</u>	<u>Quebec OEL (mg/m³)</u>
Silica, Amorphous (7631-86-9)	80 mg/m ³ % SiO ₂	3 mg/m ³ R	10 mg/m ³ I 3 mg/m ³ R	6 mg/m ³
Aluminum Oxide (1344-28-1)	15 mg/m ³ 5 mg/m ³ R	1 mg/m ³ R	1 mg/m ³ R	10 mg/m ³
Iron Oxide (1309-37-1)	10 mg/m ³ (Fume)	5 mg/m ³ R	5 mg/m ³ R	5 mg/m ³
Calcium Oxide (1305-78-8)	5 mg/m ³	2 mg/m ³	2 mg/m ³	2 mg/m ³
Magnesium Oxide (1309-48-4)	15 mg/m ³	10 mg/m ³	10 mg/m ³ I	10 mg/m ³ (Fume)
Potassium Oxide (12136-45-7)	Not Established	Not Established	Not Established	Not Established
Titanium Dioxide (13463-67-7)	15 mg/m ³	2.5 mg/m ³ R	10 mg/m ³	10 mg/m ³
Manganese (7439-96-5)	5 mg/m ³ C (Fume)	0.02 mg/m ³ R 0.1 mg/m ³ I	0.2 mg/m ³	0.2 mg/m ³
Beryllium (7440-41-7)	0.2 µg/m ³ (TWA) 2.0 µg/m ³ (STEL)	0.05 µg/m ³ I	0.05 µg/m ³ I	0.05 µg/m ³ I

If used as a blasting abrasive, the following PPE are recommended:

Eye Protection: Wear safety glasses with side shields. Use tight fitting goggles if dust is generated.

Skin Protection: Use protective gloves. Wear suitable protective clothing.

Work Practices, Hygienic Practices: Practice good personal hygiene. Wash or shower after use. Launder contaminated clothing before reuse.

Ventilation and Engineering Controls: Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.

Respiratory Protection (type): Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

Comments: Proper and safe use of the material is solely the purchaser's responsibility. The manufacturer extends no warranties and makes no representations as to the suitability of the product for the purchaser's intended purpose or the

consequences of purchaser's actions.

SECTION IX. Physical and Chemical Properties

Physical Form:	Solid (angular/granular)	Specific Gravity (H₂O = 1):	2.7 (typical)
Solubility in Water:	Negligible	Boiling Point(F):	Not applicable
Appearance:	Black solid, glassy slag	Evaporation Rate:	Not applicable
Odor:	None	Vapor Density/Pressure:	Not applicable

SECTION X. Reactivity Data

Stability: This product is stable and non-reactive under normal conditions of use, storage and transport.

Conditions to Avoid: None known.

Possibility of Hazardous Reactions: None.

Hazardous Decomposition Products: None known.

Incompatible Materials: Hydrofluoric acid.

SECTION XI. Toxicological Information

Routes Of Entry: Inhalation, ingestion, and skin absorption.

Health Hazards

Acute: Can cause respiratory inflammation resembling pneumonia. Contact with skin that has been scraped or cut may cause rashes or ulcers. Material is an eye irritant from dust or particulates.

Chronic: Inhalation of dust over a long period of time increases the risk of developing lung diseases, including pneumoconiosis.

Symptoms Of Overexposure

Inhaled: Shortness of breath, coughing, reduced pulmonary function, chest pain.

Contact with eyes or skin: Irritation, possible skin rash.

Swallowed: Gastro-intestinal discomfort.

Carcinogenicity

IARC: Coal-Fired boiler slag is not listed by IARC.

NTP: Coal-Fired boiler slag is not listed by the National Toxicology Program in their Annual Report.

OSHA: Coal-Fired boiler slag is not listed by NIOSH as a Potential Occupational Carcinogen.

Aluminum oxide (CAS 1344-28-1): No designation listed.

Beryllium (CAS 7440-41-7): ACGIH Group A1 Confirmed human carcinogen.

Calcium oxide (CAS 1305-78-8): No designation listed.

Ferric oxide (CAS 1309-37-1): ACGIH Group A4 Not classifiable as a human carcinogen.

Magnesium Oxide (CAS 1309-48-4): ACGIH Group A4 Not classifiable as a human carcinogen.

Manganese (CAS 7439-96-5): ACGIH Group A4 Not classifiable as a human carcinogen.

Potassium oxide (CAS 12136-45-7): No designation listed.

Silica, amorphous (CAS 7631-86-9): IARC Group 3 -Not classifiable.

Titanium dioxide (CAS 13463-67-7): ACGIH Group A4 Not classifiable as a human carcinogen.

SECTION XII. Ecological Information

Eco-Toxicological Information: This product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Bioaccumulation/Accumulation: This product is not bio-accumulating.

Distribution: Not available.

Aquatic Toxicity: None known.

Chemical Fate Information: Not available.

SECTION XIII. Disposal Considerations

Disposal Method: Dispose in accordance with all applicable regulations.

General Comments: TCLP testing of unused product indicates that it is not hazardous waste by characteristic.

SECTION XIV. Transport Information

DOT Shipping Name: Non-regulated Material.

DOT Hazard Class: Non-regulated Material.

General Comments: Unused product is not regulated as a hazardous material by DOT, and it is not regulated as dangerous goods by IATA, IMDG or TDG.

SECTION XV. Regulatory Information

OSHA: This SDS has been prepared to comply with the Hazard Communication Standard, 29 CFR 1910.1200.

SARA: Beryllium, cadmium and manganese are subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act.

TSCA: All components of this product are listed on the Toxic Substance Control Act inventory list.

RCRA Status: Not regulated.

OSHA Hazard Comm. Rule: Regulated.

Clean Water Act: Not covered by any water quality criteria under Section 304.

Carcinogen: Boiler slag is not listed by IARC, NIOSH or the NTP as a known or suspected carcinogen. However based upon the presence of beryllium and cadmium, the product would be classified as a Category 2 Carcinogen pursuant to the GHS Classification System.

CANADA

WHMIS 2015 Classification: This Safety Data Sheet (SDS) has been prepared to comply with this requirement.

WHMIS Hazard Symbol And Classification: Not Controlled.

WHMIS (Workplace Hazardous Materials Information System): Not controlled.

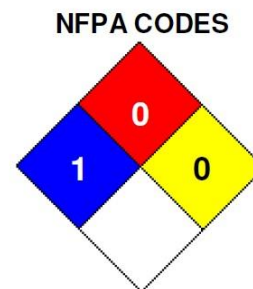
WHMIS Class: This product has been classified in accordance with the hazard criteria of the CPR and the Safety Data Sheet contains all of the information required by the CPR.

Domestic Substance List (Inventory): Listed on Inventory.

SECTION XVI. Other Information

Prepared By: Mark C. Mummert, Ph.D., PE, CIH (#8415 CP)

HMIS RATING	
HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	A



DISCLAIMER: All data or information regarding the product contained in this Safety Data Sheet (SDS) is offered by the manufacturer in good faith as accurate, but is furnished without guaranty. While the information contained in the SDS is based upon research and analysis, the manufacturer makes no representation as to the accuracy of the information. The conditions of the use of this product, and the suitability of the product for your particular application, are beyond the control of Ensio Resources, Inc. All risks of the use of the product are therefore assumed by you, the user. It is also your responsibility to pass on to your employees and /or customers the information contained in this SDS, and give them appropriate warnings and safe handling instructions as necessary to make the product safe for its intended uses.

