

U.S. DEPARTMENT OF LABOR  
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION  
HARRISBURG AREA OFFICE

49 North Progress Avenue  
Harrisburg, PA 17109  
Telephone (717) 782-3902  
FAX (717) 782-3746



February 15, 2012

Harsco Minerals  
Rossmoyne Industrial Park  
5000 Riter Rd, Ste. 205  
Mechanicsburg, PA 17055

Attn: Tom Shaw, VP Sales

Dear Mr. Shaw:

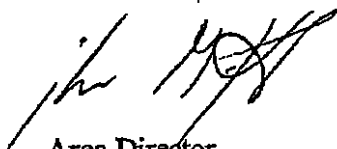
The Occupational Safety and Health Administration (OSHA) has become aware of a potential issue regarding material safety data sheets (MSDSs) and labeling of your products. Based on the existing literature<sup>1</sup> on the use of abrasive blasting grit, trace amounts of hazardous ingredients, such as beryllium, arsenic, and others, could result in exposures to workers during blasting operations above an OSHA permissible exposure limit (PEL) and/or American Conference of Governmental Industrial Hygienists (ACGIH<sup>®</sup>) Threshold Limit Values (TLVs<sup>®</sup>).

You are required under OSHA's Hazard Communication standard (29 CFR 1910.1200) to determine the hazards of the materials, label containers, and provide MSDSs for all hazardous chemicals which you produce or import. Specifically, paragraph 1910.1200(d)(5)(iv) of the standard states, "*If the chemical manufacturer, importer, or employer has evidence to indicate that a component present in the mixture in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees in those concentrations, the mixture shall be assumed to present the same hazard.*" A copy of the standard is available at [www.osha.gov](http://www.osha.gov).

I am notifying you that your MSDS(s) and/or label(s) may not be in compliance with the standard, and you may be subject to a citation. In order to evaluate compliance with this standard, please forward a copy of your written procedures used to determine the hazards of your products, and the specific rationale used for the hazard determination of your abrasive blasting grit to me. [29 CFR 1910.1200(d)(6)]. Please ensure the hazard determination includes an evaluation of the research referenced in this letter. If the MSDS(s) is deemed to be deficient, you are required to send revised copies to all of your customers with the first shipment of product after the MSDS/label is updated. [29 CFR 1910.1200(f)(11) and (g)(6)(i)]. At that time, please also send a copy to me. If this information is not received by OSHA within 30 days, an inspection of your establishment may be conducted.

Thank you for your assistance. If you have any questions regarding this matter, please feel free to contact me at 717-782-3902.

Sincerely,



Area Director

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<sup>1</sup> Crouch, Keith G., Echt, Alan, Kurimo, Robert and Yvonne Gagnon. *Control Technology and Exposure Assessment for Occupational Exposure to Beryllium: Abrasive Blasting with Coal-Slag*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, 2007, File No EPHB 263-13a.

KTA-Tator Inc. *Evaluation of Substitute Materials for Silica Sand in Abrasive Blasting*. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, 1998, Contract No. 200-95-2946.

Meeker, John D., Susi, Pam, Pellegrino, Anthony (2006). "Comparison of Occupational Exposures among Painters Using Three Alternative Blasting Abrasives." *Journal of Occupational and Environmental Hygiene*, 3:9, D80-D84.

Stettler, Lloyd, Donaldson, Harry and George Grant (1982). "Chemical Composition of Coal and Other Mineral Slags." *Journal of Occupational and Environmental Hygiene*, 14:32.

Spear, Terry, Stephenson, Dale and Marie Seymour (2002). "Characterization of the Aerosol Generated During Abrasive Blasting with Copper Slag." *Annual Occupational Hygiene*, 46: Supplement 1:296-299.

Stephenson, Dale, Spear, Terry, Seymour, Marie and Lori Cashell (2002). "Airborne Exposure to Heavy Metals and Total Particulate During Abrasive Blasting Using Copper Slag Abrasive." *Applied Occupational and Environmental Hygiene*, 17(6):437-443.

Henneberg, Paul, Goe, Sandra, Miller William, Doney, Brent and Dennis Groce (2011). "Industries in the United States with Airborne Beryllium Exposures and Estimates of the Number of Current Workers Potentially Exposed." *Journal of Occupational and Environmental Hygiene*, 1:648-659.

Hubbs, Ann, Greskevitch, Mark, Kuempel, Eileen, Suarez, Fernando, Mark Torason (2005). "Abrasive Blasting Agents: Designing Studies to Evaluate Relative Risk." *Journal of Toxicology and Environmental Health, Part A*, 68:999-1016.

# Material Safety Data Sheet

## BLACK BEAUTY® Abrasives and Roofing Products



THE ORIGINAL  
**BLACK BEAUTY®**

### SECTION I - GENERAL

Harsco Minerals International  
P.O. Box 0515  
Camp Hill, PA 17001-0515  
(717) 506-7157

**Product Name:** BLACK BEAUTY Abrasives and Roofing Products  
**CAS Number:** 68476-96-0  
**Common Name:** Slag, Coal

Date: March 26, 2012

### SECTION II - PRODUCT COMPOSITION

Component	Normal Composition (WT%) Range	CAS Number	OSHA PEL (mg/m <sup>3</sup> )
Silicon Dioxide [SiO <sub>2</sub> ]	41-53%	7631-86-9	80 mg/m <sup>3</sup> %SiO <sub>2</sub>
Silicon Dioxide [SiO <sub>2</sub> Crystalline "Free Silica"]			
Quartz	<0.1%	14808-60-7	10 mg/m <sup>3</sup> (Respirable Dust) %SiO <sub>2</sub> +2
Cristobalite	ND	14464046-1	30 mg/m <sup>3</sup> (Quartz Total Dust) %SiO <sub>2</sub> +2
Tridymite	ND	15468-32-3	80 mg/m <sup>3</sup> (Respirable Dust) %SiO <sub>2</sub>
Aluminum Oxide [Al <sub>2</sub> O <sub>3</sub> ]	17 - 25%	1344-28-1	15 mg/m <sup>3</sup>
Calcium Oxide [CaO]	3 - 15%	1305-78-8	5 mg/m <sup>3</sup>
Magnesium Oxide [MgO]	0 - 4%	1309-48-4	15 mg/m <sup>3</sup> (Fume)
Iron Oxide [FeO]	7 - 31%	1309-37-1	10 mg/m <sup>3</sup>
Potassium Oxide [K <sub>2</sub> O]	0 - 3%	12136-45-7	NE
Titanium Dioxide [TiO <sub>2</sub> ]	0 - 2%	13463-67-7	15 mg/m <sup>3</sup>
Beryllium	0 - 0.001%	7440-41-7	2.0 ug/m <sup>3</sup>
Cadmium	0 - 0.001%	7440-43-9	5.0 ug/m <sup>3</sup>
Manganese	0 - 0.05%	7439-96-5	5000 ug/m <sup>3</sup>

ND - Not Detectable

NE - Not Established

### SECTION III - PHYSICAL DATA

Physical Form:	Solid (Angular Granules)	Specific Gravity:	2.7 g/cc Typical
Boiling Temperature:	N/A	Water Solubility:	Negligible
Melting Temperature:	> 2500°F	Color:	Black Course Solid
Vapor Pressure/Density:	N/A	Odor:	None
Evaporation Rate:	N/A		

### SECTION IV - FIRE/EXPLOSION/REACTIVITY DATA

Product is nonflammable, non-explosive and stable under normal conditions of use, storage and transportation.

# Material Safety Data Sheet

## IRON HORSE™ Abrasives



# IRON HORSE™

### SECTION I - GENERAL

Harsco Minerals  
P.O. Box 0515  
Camp Hill, PA 17001-0515  
(717) 506-7157

**Product Name:** IRON HORSE™ Abrasives  
**CAS Number:** 67711-92-6  
**Common Name:** Iron Silicate Granules

*COPPER  
SLAG*

Date: March 26, 2012

### SECTION II - PRODUCT COMPOSITION

Component	Normal Composition (WT%) Range	CAS Number	OSHA PEL (mg/m <sup>3</sup> )
Iron Oxide [Fe <sub>2</sub> O <sub>3</sub> ]	48-67%	1309-37-1	10 mg/m <sup>3</sup> (Fume)
Silicon Dioxide [SiO <sub>2</sub> ]	28-35%	7631-86-9	80 mg/m <sup>3</sup> %SiO <sub>2</sub>
Silicon Dioxide [SiO <sub>2</sub> , Crystalline "Free Silica"]			
Quartz	<0.1%	14808-60-7	10 mg/m <sup>3</sup> (Respirable Dust) %SiO <sub>2</sub> +2
Cristobalite	ND	14464-46-1	30 mg/m <sup>3</sup> (Quartz Total Dust) %SiO <sub>2</sub> +2
Tridymite	ND	15468-32-3	80 mg/m <sup>3</sup> (Respirable Dust) %SiO <sub>2</sub>
Aluminum Oxide [Al <sub>2</sub> O <sub>3</sub> ]	3-7%	1344-28-1	15 mg/m <sup>3</sup>
Calcium Oxide [CaO]	0.3-6%	1305-78-8	5 mg/m <sup>3</sup>
Magnesium Oxide [MgO]	0.5-2%	1309-48-4	15 mg/m <sup>3</sup> (Fume)
Sodium Oxide [Na <sub>2</sub> O]	0.3-2%	1313-59-3	NE
Sulfur Trioxide [SO <sub>3</sub> ]	0.5-2%	7446-11-9	NE
Titanium Dioxide [TiO <sub>2</sub> ]	<1%	13463-67-7	15 mg/m <sup>3</sup>
Potassium Oxide [K <sub>2</sub> O]	<1%	12136-45-7	NE
Arsenic	0-0.1%	7400-38-2	10 ug/m <sup>3</sup>
Beryllium	0-0.001%	7440-41-7	2 ug/m <sup>3</sup>
Cadmium	0-0.001%	7440-43-9	5 ug/m <sup>3</sup>
Lead	0-0.001%	7439-92-1	50 ug/m <sup>3</sup>
Manganese	0-0.05%	7439-96-5	5000 ug/m <sup>3</sup>

ND = Not Detectable, NE - Not Established

### SECTION III - PHYSICAL DATA

Physical Form:	Uniform composition, glassily solidified	Specific Gravity:	3.4 g/cc Typical
Boiling Temperature:	N/A	Water Solubility:	Negligible
Melting Temperature:	> 2500° F	Color:	Black Course Solid
Vapor Pressure/Density:	N/A	Odor:	None
Evaporation Rate:	N/A		

### SECTION IV - FIRE/EXPLOSION/REACTIVITY DATA

Product is nonflammable, non-explosive and stable under normal conditions of use, storage and transportation.

5000 Ritter Road, Suite 205, Mechanicsburg, PA 17055  
1-888-733-3646 | www.harsco minerals.com

**HARSCO**  
MINERALS

American Coal Ash Association Phone: 720-870-7897  
 38800 Country Club Drive Fax: 720-870-7889  
 Farmington Hills, MI 48331 Internet: www.ACAA-USA.org  
 Email: Info@acaa-usa.org

## 2015 Coal Combustion Product (CCP) Production & Use Survey Report

### Beneficial Utilization versus Production Totals (Short Tons)

2015 CCP Categories	Fly Ash	Bottom Ash	Boiler Slag	FGD Gypsum	FGD Material/Water Scrubbers	FGD Material/Dry Scrubbers	FGD Other	FBC Ash	CCP Production/Utilization Totals	
Total CCPs Produced by Category	44,365,587	12,010,425	2,228,205	32,681,536	11,313,980	1,311,847	206,314	13,181,460	117,289,432	
Total CCPs Used by Category	24,062,786	4,819,205	1,866,912	17,058,178	1,249,438	252,849	20,697	11,723,843	61,053,908	
1. Concrete/Concrete Products/Grout	15,737,238	570,092	33,290	409,134	0	0	0	0	16,749,754	
2. Blended Cement/Feed for Clinker	3,629,151	1,130,802	0	1,649,934	0	0	0	0	6,409,887	
3. Fly Ash Fill	107,283	9,108	0	0	0	0	0	0	116,391	
4. Structural Fills/Embankments	1,277,356	1,561,531	305,770	1,221,865	100,940	0	0	0	4,467,462	
5. Road Base/Sub-base	178,281	311,779	21	0	0	0	0	0	490,081	
6. Soil Modification/Stabilization	216,483	66,253	0	8,053	0	0	0	0	290,789	
7. Mineral Filler in Asphalt	52,784	0	14,176	0	0	0	11,479	0	78,440	
8. Snow and Ice Control	0	527,695	77,935	0	0	0	0	0	605,630	
9. Blasting Chip/Refractory Granules	0	184,712	1,400,455	173	0	0	0	0	1,585,340	
10. Mining Applications	1,128,682	73,415	0	807,280	0	215,974	0	11,593,760	13,819,113	
11. Gypsum Panel Products (Drywall/Wallboard)	0	28,378	0	11,322,016	973,785	0	0	0	12,324,179	
12. Waste Stabilization/Solidification	1,138,078	242	0	0	0	0	9,218	130,083	1,277,621	
13. Agriculture	2,409	1,788	0	1,392,693	174,713	0	0	0	1,571,602	
14. Aggregate	0	173,472	0	0	0	0	0	0	173,472	
15. Oil/Gas Field Services	181,907	0	0	0	0	36,875	0	0	218,782	
16. Miscellaneous/Other	413,152	179,940	35,265	247,030	0	0	0	0	875,387	
Summary Utilization to Production Rate										
CCP Categories	Fly Ash	Bottom Ash	Boiler Slag	FGD Gypsum	FGD Material/Water Scrubbers	FGD Material/Dry Scrubbers	FGD Other	FBC Ash	CCP Utilization Total	
Totals by CCP Type/Application	24,062,786	4,819,205	1,866,912	17,058,178	1,249,438	252,849	20,697	11,723,843	61,053,908	
Category Use to Production Rate (%)	54.24%	40.13%	83.79%	52.23%	11.04%	19.27%	10.03%	88.87%	52.05%	
2015 Cenospheres Sold (Pounds)	948,787	Data in this survey represents 182 GWs of Name Plate rating of the total industry-wide approximately 291 GW capacity based on EIA's July 2016 Electric Power Monthly.								

**Notes:**

These are estimates for entire U.S. utility and IPP sectors calculated by dividing the survey respondents' data by the portion of the overall industry's coal burn they represent, as reported in the July 2016 EIA Electric Power Monthly (57%).

*COAL SLAG  
 % OF TOTAL CCP = .012%  
 % OF TOTAL LANDFILL  
 CCP = .025%*