

To: Thomas Galassi, Director, Directorate of Enforcement Programs, OSHA

From: Justin Feldman, Worker Health and Safety Advocate, Public Citizen

Date: January 19, 2012

Re: Enforcement of Hazard Communications Standard

Manufacturers of coal slag abrasive are failing to report their product's beryllium exposure risks. This omission denies abrasive blasting workers their right to know about hazardous exposures as established under 29 CFR 1910.1200(a), OSHA's hazard communication standard. OSHA's Directorate of Enforcement Programs should inform these manufacturers of their legal obligation to disclose beryllium hazards on material safety data sheets (MSDS) and take enforcement action if the companies fail to comply.

Beryllium is a highly toxic metal that can result in chronic beryllium disease and lung cancer. Even short-term exposure at low levels can be dangerous, causing immune system sensitization to beryllium in as little as two months. OSHA's own analysis, conducted for its draft beryllium standard, indicates that abrasive blasters may face higher beryllium exposure than any other occupation. Several studies show that coal slag abrasive can release beryllium at concentrations in excess of established occupational exposure limits, including OSHA's permissible exposure limit (PEL) and ACGIH's Threshold Limit Value.

Despite their toxic contents, all of the major coal slag abrasive manufacturers fail to disclose beryllium hazards on their material safety data sheets (see below). Some manufacturers even mislead end-users by marketing their product as "non-toxic". The Directorate of Enforcement Programs should move quickly to rectify these dangerous omissions.

Hazard Communications Standard

Under 29 CFR 1910.1200 (d)(5)(iv), manufacturers are required to disclose a hazardous substance if a mixture contains the toxicant at levels that "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."

Data from exposure assessment studies indicate coal slag abrasive contains levels of beryllium that can be released at concentrations in excess of ACGIH's TLV (0.05 µg/m³ 8-hour time-weighted average) and OSHA's PEL (2.0 µg/m³ 8-hour time-weighted average, 5.0 µg/m³ ceiling). Coal slag manufacturers are therefore legally obligated to disclose beryllium hazards on their MSDS.

Exposure Assessment Studies

There are three publicly available studies assessing beryllium exposure for blasting workers who use coal slag abrasive. Each of the studies collected multiple samples with beryllium concentrations that exceed the OSHA PEL and/or ACGIH TLV for beryllium.

- 1) **Keith G. Crouch et al., *Control Technology and Exposure Assessment for Occupational Exposure to Beryllium: Abrasive Blasting with Coal-Slag*. NIOSH (2007).**

This study used a variety of methods to assess beryllium exposure resulting from coal slag abrasive use over a two-day period. On Day 1, the personal breathing zone cassette sample for a blasting worker found an 8-hour TWA beryllium concentration of 2.1 $\mu\text{g}/\text{m}^3$, which exceeds both OSHA's PEL and ACGIH's TLV. A 3-hour TWA for the same sample was 5.3 $\mu\text{g}/\text{m}^3$, in excess of OSHA's permitted 15-minute TWA ceiling concentration. Area samples taken inside the tarp on Day 1 found a beryllium concentration of 0.15 $\mu\text{g}/\text{m}^3$, which exceeds the ACGIH TLV.

- 2) **J. D Meeker, et al., *Comparison of Occupational Exposures Among Painters Using Three Alternative Blasting Abrasives*, 3 JOURNAL OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE 80 (2006).**

This three-year study assessed personal exposure for blasters who used three types of abrasive media on similar bridges. The investigators collected five personal breathing zone samples from blasters working with coal slag. They calculated task-weighted exposure concentrations, which ranged from 2.5 $\mu\text{g}/\text{m}^3$ to 9.5 $\mu\text{g}/\text{m}^3$. Even the minimum value exceeds the 8-hour TWA PEL and several values exceeded OSHA's ceiling for beryllium exposure (the geometric mean for the samples was 5.5 $\mu\text{g}/\text{m}^3$).

- 3) **KTA-Trator, Inc., *Evaluation of Substitute Materials for Silica Sand in Abrasive Blasting*. NIOSH (1998).**

In this study, investigators assessed exposure to beryllium in coal slag abrasive by taking three area samples and one personal sample from a blasting site. The beryllium levels for these samples ranged from 0.86 $\mu\text{g}/\text{m}^3$ to 5.87 $\mu\text{g}/\text{m}^3$, with a geometric mean of 3.33 $\mu\text{g}/\text{m}^3$. These values exceed the OSHA PEL and ACGIH TLV.

Disclosure of Beryllium Hazards by Coal Slag Abrasive Manufacturers

Manufacturer	Product Name	MSDS Discloses Beryllium?
Harsco Corp.	Black Beauty	No
Abrasives, Inc.	Black Magic	No
American Industrial Minerals	BlackMax Coal Slag	No
ATI Black Diamond	various	No
Ensio, Inc.	Patriot Blast	No
Mobile Abrasives, Inc.	Black Blast	No
Opta Minerals, Inc.	Blackblast	No
U.S. Minerals	Black Magnum	No

Ten years ago, Public Citizen petitioned OSHA to update the beryllium PEL. Our petition has not yet resulted in a beryllium regulation that actually protects workers' health.

In absence of an adequate beryllium standard, the least that the OSHA Directorate of Enforcement Programs could do is ensure workers are informed about their risks, a right they are afforded by existing law.

CC: Debbie Berkowitz, OSHA Chief of Staff