

## > Acid Mine Drainage Treatment Utilizing TMS International Steel Slag

### STEEL SLAG ENVIRONMENTAL BENEFITS

- Acid Mine Drainage impacted sites benefit from steel slag based passive treatment systems
- Extended-filter bed life—continues to generate alkalinity over long periods of time
- Steel slag leach fields can last 10 years without maintenance
- Steel slag alkalinity concentrations are in the thousands of mg/l, change occurs within minutes. Limestone generates only 80 mg/l after 11 hours in water
- Unlike limestone, steel slag does not armorize
- Various sizing from rip-rap to 1/4" minus materials available
- Multiple locations available to obtain steel slag material

### SUCCESSES USING STEEL SLAG IN ACID MINE DRAINAGE TREATMENT

The Buckeye Furnace Project, *Jackson County, OH*

The McCarty High Wall Site, *Preston County, WV*

The Black Branch At Cane Creek Site, *Walker County, Oakman, AL*

Ohiopyle State Park, *Fayette County, PA*



## TMS INTERNATIONAL STEEL SLAG IS A STABLE, SUSTAINABLE PRODUCT OF THE STEEL MAKING PROCESS, ENGINEERED FOR USE BY TMS INTERNATIONAL

Based on its physical properties, and through extensive testing and actual field use throughout the United States, TMS International Steel Slag can outperform natural aggregates in a variety of special applications.

TMS International Steel Slag is processed at local steel mills and is structurally stable. When fully cured, TMS Steel Slag represents a practical resource that is both economically attractive and environmentally sound, well below US EPA Toxicity Characteristics Leachate Procedure (TCLP) limits by a wide margin.

TMS International Steel Slag is available to suit individual size and specification requirements.

For more information on TMS Steel Slag, contact our Aggregate Sales Department at **1-855-TMS-SLAG** (1-855-867-7524) or visit our website at [tmsinternational.com/slag-aggregates.cfm](http://tmsinternational.com/slag-aggregates.cfm).

Typical TCLP Analysis (mg/l)		
	<b>TMS STEEL SLAG</b>	<b>EPA Max.</b>
Arsenic	0.002	5.0
Barium	1.400	100.0
Cadmium	0.002	1.0
Chromium	0.038	5.0
Lead	0.004	5.0
Mercury	0.0002	0.2
Selenium	0.003	1.0
Silver	0.005	5.0

Physical Properties		
LA abrasion	(ASTM C 535-96)	18-25% loss
Sodium sulfate	(ASTM C 88)	4-10% loss
Density	(ASTM C 29)	100-140 lbs./ft <sup>3</sup>
Absorption	(ASTM 128-97)	2-4%
Compaction	(ASTM D 1557C)	130-156 lbs./ft <sup>3</sup> @ Optimum Moisture

Major Primary Mineral Constituents (Molecular and Structural Formula)		
Wustite	iron oxide	[FeO]
Spinel Group	magnesium aluminum oxide	[MgAl <sub>2</sub> O <sub>4</sub> ]
Magnetite	iron oxide	[Fe <sub>3</sub> O <sub>4</sub> ]
Gehlenite	calcium aluminum silicate	[Ca <sub>2</sub> Al(AlSiO <sub>7</sub> )]
Merwinite	calcium magnesium silicate	[Ca <sub>3</sub> Mg(SiO <sub>4</sub> ) <sub>2</sub> ]
Larnite/Belite/C <sub>2</sub> S	calcium silicate	[Ca <sub>2</sub> SiO <sub>4</sub> ]
Calcio-Olivine	calcium silicate	[Ca <sub>2</sub> SiO <sub>4</sub> ]
Srebrodolskite	calcium iron oxide	[Ca <sub>2</sub> Fe <sub>2</sub> O <sub>5</sub> ]
Bredigite	calcium magnesium silicate	[Ca <sub>14</sub> Mg <sub>2</sub> Si <sub>8</sub> O <sub>32</sub> ]
Amorphous		

For more information please contact:

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