

**American Industrial Minerals, LLC**  
**1451 Pier Road**  
**Orange, TX 77630**  
**Material Safety Data Sheet**

**SECTION 1 – PRODUCT IDENTIFICATION & USE:**

***Black-Max Copper Slag***

**CHEMICAL NAME AND SYNONYMS:** Fayalita (Complex silicates and oxides of Fe, Si, Ca, Al; (copper slag)

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**MANUFACTURER AND SUPPLIER:**

***American Industrial Minerals, LLC***

***1451 Pier Road***

***Orange, TX 77630***

**Tel:** 409-670-0320

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**MATERIAL IDENTIFICATION AND USE**

Note: This MSDS covers many products and individual physical and chemical properties will vary. Consult individual Technical Data Sheet's for specific information.

**SECTION 2 – HAZARDS IDENTIFICATION**

Evidence may exist to indicate that components present in this material 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. Employee exposure monitoring should be performed to determine exposure levels.

**SECTION 3 – COMPOSITION/HAZARDOUS INGREDIENTS**

The approximate element composition of this material is as follows:

<u>Ingredients</u>	<u>CAS#</u>	<u>Typical % by weight</u>
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1	~60-65
Silicon Dioxide (SiO <sub>2</sub> )	60676-86-0	~28-30
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	1344-28-1	~2-4
Zinc (Zn)	1314-13-2	~1-3
Calcium Oxide (CaO)	1305-78-8	~0.3-1.2
Crystalline Silica (SiO <sub>2</sub> )	14808-60-7	<0.1
Arsenic (As)	7440-38-2	0.02
Beryllium (Be)	7440-41-7	<0.00005
Cadmium (Cd)	7440-43-9	0.009
Chromium (Cr)	7440-47-3	0.01
Cobalt (Co)	7440-48-4	0.008
Lead (Pb)	7439-92-1	0.1
Nickel (Ni)	7440-02-0	0.009

#### SECTION 4 - FIRST AID MEASURES

**EXPOSURE LIMITS:** Refer to Section 11 which highlights the Permissible Exposure Limit (PEL).  
**SKIN CONTACT:** Wash with soap and water if irritation occurs.  
**EYE EXPOSURE:** Immediately flush with water or an ophthalmic saline solution and seek medical advice if irritation persists.  
**INGESTION:** Rinse mouth out with water and seek immediate medical aid if necessary.  
**INHALATION:** Remove to fresh air. If breathing difficulty is encountered, seek medical aid.

#### SECTION 5 – FIRE AND EXPLOSION DATA

**FLAMMABILITY:** No.  
**EXTINGUISHING MEDIA:** Not applicable.  
**SPECIAL FIRE FIGHTING PROCEDURES:** Not applicable.  
**UNUSUAL FIRE/EXPLOSION HAZARDS:** Not applicable.  
The product will not burn or explode.

#### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**LEAKS AND SPILLS:** Avoid breakage of bagged material or spills of bulk material. Do not dry sweep, use a dustless system (vacuum) for clean up so that airborne dust does not exceed the permissible exposure limit.  
**WASTE DISPOSAL INFORMATION:** Dispose in accordance with federal, state or local regulations. Material contaminated in use may have special disposal requirements. Dispose in accordance with federal, state or local regulations

#### SECTION 7 – HANDLING AND STORAGE

**HANDLING PROCEDURES AND EQUIPMENT:** Use adequate ventilation and dust collection. Do not permit dust to collect on walls, floors, ledges, machinery, or equipment. Use dustless system (vacuum) for handling, storage and clean up so that airborne dust does not exceed the permissible exposure limit.  
**STORAGE REQUIREMENTS:** No special storage procedures required. Avoid dust generation when handling.

#### SECTION 8 – EXPOSURE CONTROLS/ PERSONAL PROTECTION

If copper slag is used for abrasive blasting, proper protective clothing, eye protection, and respiratory protection should be used in accordance with OSHA regulations.

**EYE PROTECTION:** Safety goggles or glasses, as required by nature of task(s) being performed.  
**SKIN PROTECTION:** Impervious gloves recommended and other clothing as required by nature of work being done.  
**VENTILATION:** Use adequate ventilation and dust collection.

A health hazard may occur if limits for air contaminants exceed OSHA-PELs per 29 CFR 1910.1000. Proper engineering controls and ventilation should be used to prevent air contaminants from exceeding PEL limits. NIOSH-approved respirators should be used during operations that may create dust.

**ROUTE(s) OF ENTRY:** Inhalation of dust during handling or use.  
**RESPIRATORY PROTECTION:** The following specifies the types of respirators to be used based on airborne concentrations of respirable crystalline silica. This has been provided as a guide only, and is not meant to be exhaustive or to be construed as legal advice. It does not address all potential compliance issues with federal, state, local, OSHA or any other

regulatory agency standards for the protection of personnel that may be exposed to airborne concentrations of any particulate matter.

**Airborne Concentration                      Type of Respirator**

(Respirable Free Silica)

≤ 10 X TWAEV    Half-mask particulate respirator with N-, R-, or P- series filter and 95, 99, or 100% efficiency.

≤ 25 X TWAEV    Powered air purifying respirator equipped with a hood or helmet, and any type of particulate filter; or supplied air respirator equipped with a hood or helmet and operated in a continuous flow mode.

TWAEV – time-weighted average exposure value

**Where applicable, respirators should be fitted, maintained, and cleaned in accordance with the regulations made under the**

**Occupational Health and Safety Act.**

**OTHER PROTECTIVE EQUIPMENT:** As required by nature of work being done.

**SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE:** Solid, angular granules. Black color.

**ODOR:** No appreciable odor.

**SOLUBILITY IN WATER (%):** Insoluble.

**MELTING POINT:** Not available.

**PH:** Not available.

**SPECIFIC GRAVITY:** 3.5-3.9

**BULK DENSITY:** 110-120 lb/ft<sup>3</sup>

**SECTION 10 – STABILITY AND REACTIVITY**

**PRODUCT STABILITY:**

Stable.

**HAZARDOUS POLYMERIZATION:**

Will not occur.

**CONDITIONS TO AVOID:**

Not applicable.

**INCOMPATIBILITY:**

Not applicable.

**HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:** Not applicable.

**SECTION 11 – TOXICOLOGICAL INFORMATION**

Evidence may exist to indicate that components present in this material 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. Employee exposure monitoring should be performed to determine exposure levels.

**ACCUTE and CRONIC TOXICITY:** Exposure to and contact from dust may irritate the respiratory system, eyes, or skin. Coal slag is not listed on the NTP, IARC, or OSHA list of carcinogens. However, a health hazard may occur if limits for air contaminants exceed OSHA-PELs. If ingested it may cause nausea and vomiting.

**EYE CONTACT:**

May cause irritation due to presence of “foreign object”.

**SKIN CONTACT:**

Possible skin irritation.

**INHALATION:**

**EFFECTS OF ACUTE EXPOSURE:**

Exposure may cause irritation to nose, throat and lungs.

**EFFECTS OF CHRONIC EXPOSURE:**

Exposure may cause irritation to nose, throat and lungs.

**INGESTION:**

May cause irritation.

**OCCUPATIONAL EXPOSURE LIMITS:**

The following refers to airborne concentrations of substances. The potential hazard of solid particles depends on particle size, which is expressed in three forms:

**Inhalable (< 100 ηm)** – when deposited anywhere in the respiratory tract

**Thoracic (< 25 ηm)** – when deposited anywhere within the lung airways and the gas-exchange region

**Respirable (< 10 ηm)** – when deposited in the gas-exchange region

Substance	C.A.S. No.	PEL mg/m3	TWA mg/m3	STEL/C	Critical Effect(s)
PNOC <sub>1</sub>	Inhalable	15	10	-	Lung
	Respirable	5	3	-	Lung
Fe <sub>2</sub> O <sub>3</sub> (Iron Oxide)	1309-37-1	10	5	-	Pneumoconiosis
Al <sub>2</sub> O <sub>3</sub> (Aluminum Oxide)	1344-28-1	15	10	-	Lung; irritation
CaO (Calcium Oxide)	1305-78-8	5	2	-	Irritation
MgO (Magnesium Oxide)	1309-48-4	15	10	-	Irritation; metal fume fever
TiO <sub>2</sub> (Titanium Dioxide)	13463-67-7	15	10	-	Lung
As (Arsenic)	7440-38-2	0.01	0.01	-	Lung cancer
Be (Beryllium)	7440-41-7	0.002	0.00005	-	Cronic beryllium disease
Cd (Cadmium)	7440-43-9	0.005	0.01	-	Kidney damage
Cr (Chromium)	7440-47-3	0.005	0.01	-	Lung & URT cancer
Co (Cobalt)	7440-48-4	0.1	0.02	-	Lung; myocardial eff
Pb (Lead)	7439-92-1	0.05	0.05	-	CNS & PNS impair
Ni (Nickel)	7440-02-0	1	0.1	-	Lung cancer

<sub>1</sub> Particulates (Insoluble) Not Otherwise Classified

**OSHA PEL** – Permissible Exposure Limit (mg/m<sup>3</sup>)

**ACGIH TWA** – Time Weighted Average (mg/m<sup>3</sup>)

**STEL/C** – Short-term Exposure Limit / Ceiling (mg/m<sup>3</sup>)

In other jurisdiction, please consult appropriate occupational exposure regulations.

**Reference:** ACGIH TLV's and BEI's Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices

## SECTION 12 – ECOLOGICAL INFORMATION

No specific procedures have been required for clean-up, but it is recommended that this is done mechanically or through the use of hand tools. Wetting with water will reduce any airborne dust. Uncontaminated product does not exceed Toxicity Characteristic Leaching Procedure (TCLP) limits and may be disposed in an appropriate solid waste landfill according to applicable Federal, State and Local regulations.

## SECTION 13 – DISPOSAL CONSIDERATIONS

### WASTE DISPOSAL:

Dispose in accordance with federal, state or local regulations. Material contaminated in use may have special disposal requirements. Dispose in accordance with federal, state or local regulations

## SECTION 14 – TRANSPORT INFORMATION

**DOT Classification:** Not a regulated material

**Proper Shipping Name:** N/A

**DOT ID #:** Not regulated

**SECTION 15 – REGULATORY INFORMATION**

**SARA Title III Hazard Classes:**

Fire Hazard: No  
Reactive Hazard: No  
Release of Pressure: No

**TSCA**

All components of this product are on the TSCA inventory or are not required to be listed.

**SECTION 16 – OTHER INFORMATION**

The information contained herein is based on available data and is believed to be correct. However, American Industrial Minerals, LLC (AIM) makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. The information in this MSDS has been provided as a guide and is not meant to be exhaustive or to be construed as legal advice. It does not address all potential compliance issues with federal, state, local, OSHA or any other regulatory agency standards for the protection of personnel that may be exposed to any particulate matter.

It should not be construed as a warranty that any AIM product is or is not a hazardous chemical under any applicable safety, or environmental statute, rule, or regulation. The use or application of any AIM product, whether or not used in conjunction with any other product, may result in the violation of safety or environmental statutes, rules or regulations as AIM has no control over how the product is used, or the possible contaminants that may exist on the surface to which it is applied. Therefore, there shall be no express or implied warranty that the spent product conforms to applicable safety and/or environmental statutes, rules or regulation. Further, AIM makes no warranties as to any product, express or implied, including the Implied Warranty of Merchantability, any implied warranty of fitness for a particular purpose or any implied warranties otherwise arising from course of dealing or trade. By acceptance of any AIM product, the buyer thereof agrees that AIM liability for any claim for damages, including but not limited to, remediation or cleanup costs shall not exceed the value of the goods provided.

This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof, including any safety, health, and/or environmental restrictions or prohibitions that may apply. It is the user's obligation to determine and observe the conditions of safe use and disposal of this product.