

SAFETY DATA SHEET

Section 1. IDENTIFICATION

PRODUCT: SHARPSHOT® Iron Silicate Abrasives

Composition: Iron Silicate (Complex silicates and oxides of iron, silica, calcium, and aluminum)
Product Use: Abrasive air-blasting media

Manufacturer: Minerals Research, Inc.
 4620 South Coach Drive
 Tucson, Arizona 85714

Creation Date: 3/16
Revision Date: 12/17

For Additional Information, Contact:
 Minerals Research, Inc.
 (520) 748-9362 Phone
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Section 2: HAZARDS IDENTIFICATION

Proper precautions should be taken to avoid any health hazard. A health hazard may occur if limits for air contaminants exceed PEL limits as 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 all abrasive blasting operations. (See below for information on potentially hazardous elements)

Usual Route(s) of Entry: Inhalation of dust during handling or use
Medical Conditions Possibly Aggravated By Exposure: Chronic diseases or disorders of the respiratory system.

Please note that this product may contain the following chemical components in quantities less than 1% by weight. Under extreme conditions (e.g. sandblasting in a confined space without sufficient ventilation), OSHA PELs or ACGIH TLV's could be exceeded. In these situations, employee exposure monitoring should be performed to determine exposure levels.

<u>Component</u>	<u>CAS #</u>	<u>Fed OSHA PEL (mg/m³)</u>	<u>CA OSHA PEL (mg/m³)</u>	<u>ACGIH TLV (mg/m³)</u>
Arsenic (As)	7440-38-2	0.01	0.01	0.01
Cadmium (Cd)	7440-43-9	0.2	0.2	0.01
Chromium (Cr)	7440-47-3	1	0.5	0.5
Cobalt (Co)	7440-48-4	0.1	0.02	0.02
Copper (Cu)	7440-50-8	1	0.1	1
Lead (Pb)	7439-92-1	0.05	0.05	0.05
Mercury (Hg)	7439-97-6	-	-	0.1 (skin)
Molybdenum (Mo)	7439-98-7	15	10 (inh); 3 (resp)	10 (inh); 3 (resp)
Selenium (Se)	7782-49-2	0.2	0.2	0.2
Vanadium (Vn)	1314-62-1	0.5 (resp)	0.05 (resp)	0.05 (resp)
Zinc (Zn)	1314-13-2	5 (resp)	5 (resp)	2 (resp)
Crystalline Silica (SiO ₂)	14808-60-7	0.05 (resp)	0.05 (resp)	0.025 (resp)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Composition: Iron Silicate (complex silicates and oxides of iron, silica, calcium, and aluminum)

<u>Component</u>	<u>CAS #</u>	<u>Typical % Weight</u>
Iron Oxide (Fe ₂ O ₃)	1309-37-1	40-50
Silicates (amorph. SiO ₂)	7440-21-3	35-45
Alpha-Alumina (Al ₂ O ₃)	1344-28-1	5-10
Calcium oxide (CaO)	1305-78-8	3-8
Magnesium oxide (MgO)	1309-48-4	1-3
Potassium oxide (K ₂ O)	12136-45-7	<1

Please note that this product may contain the following chemical components in quantities less than 1% by weight.

<u>Component</u>	<u>CAS #</u>	<u>Typical % Weight</u>
Arsenic (As)	7440-38-2	<0.007
Barium (Ba)	7440-39-3	<0.005
Cadmium (Cd)	7440-43-9	<0.0008
Chromium (Cr)	7440-47-3	<0.0012
Cobalt (Co)	7440-48-4	<0.004
Copper (Cu)	7440-50-8	<0.18
Lead (Pb)	7439-92-1	<0.009
Molybdenum (Mo)	7439-98-7	<0.0005
Selenium (Se)	7782-49-2	<0.001
Vanadium (Vn)	1314-62-1	<0.003
Zinc (Zn)	1314-13-2	<1
Crystalline Silica (SiO ₂)	14808-60-7	<0.4

Footnotes:

- (1) See last page for important additional terms and conditions including disclaimer of warranties.
- (2) Concentration may vary somewhat between batches or lots. Where possible, a concentration range is indicated. Occasionally, however, levels may even fall outside of the typical concentration range.

Section 4: FIRST AID MEASURES

Eye Contact: Not anticipated to pose an acute or significant eye contact hazard. In the event of eye contact, flush eyes with generous amounts of water.

Skin Contact: Not anticipated to pose an acute or significant skin contact hazard. Wash with soap and water as needed to remove from skin

Inhalation: Not anticipated to pose an acute or significant inhalation hazard if proper work practices are employed to maintain dust exposure below OSHA PEL's. If overexposure occurs, remove individual to area with fresh air until symptoms cease.

Ingestion: Not considered to be an ingestion hazard.

Section 5: FIRE FIGHTING MEASURES

<u>Flash Point:</u>	NA	<u>Lower Explosive Limit:</u>	NA
<u>Auto-ignition Temperature:</u>	NA	<u>Upper Explosive Limit:</u>	NA
<u>Fire Hazard:</u>	NA	<u>Explosion Hazard:</u>	NA
<u>Extinguishing Media:</u>	NA	<u>Special Fire Fighting Procedures:</u>	NA
<u>Unusual Fire and Explosion Hazards:</u>	NA		

Section 6: ACCIDENTAL RELEASE MEASURES

Procedures to Follow if Material is Released or Spilled: Using appropriate personnel protective equipment, material should be swept or vacuumed or otherwise collected into appropriate containers.

Waste Disposal Method(s): Landfill disposal or other methods that are in accordance with local, state and federal regulations. MRI testing has shown that virgin (unused and uncontaminated) material does not exceed the Toxicity Characteristic Leaching Procedure (TCLP) hazardous waste limits per 40 CFR 261.3. Used or contaminated material should be tested in accordance with 40 CFR 262.11 or any applicable local or state regulations to determine if it is a hazardous waste and disposed of accordingly.

Section 7: HANDLING AND STORAGE

Handling Procedures: Use care to minimize airborne dust generation during handling, and use adequate ventilation and/or dust collection.

Storage: Keep product dry - store product indoors or cover completely to protect from moisture prior to use. Wet material will cause clumping and clogging of abrasive blasting equipment.

Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Engineering Controls (Ventilation, etc.): Ventilation should be sufficient to maintain dust levels below applicable exposure limit.

Work Practices (Handling and Storage, etc.): Avoid creating airborne dust during handling and use.

Eye Protection: Safety glasses, goggles or face shields are recommended during abrasive blasting or when dust levels are excessive.

Skin Protection: Gloves and long-sleeved clothing are recommended during abrasive blasting or when dust levels are excessive.

Respiratory Protection: When engineering controls are not sufficient to lower dust levels below the applicable exposure limit, use a NIOSH-approved respirator. NIOSH-approved respirators should be used during all abrasive blasting operations in accordance with 29 CFR 1910.134 (OSHA Respiratory Protection Program).

<u>Component</u>	<u>CAS #</u>	<u>Typical % Weight</u>	<u>Fed OSHA PEL (mg/m³)</u>	<u>CA OSHA PEL (mg/m³)</u>	<u>ACGIH TLV (mg/m³)</u>
Iron Oxide (Fe ₂ O ₃)	1309-37-1	40-50	10	5	5
Silicates (amorph. SiO ₂)	7440-21-3	35-45	1.8	6 (resp = 3)	10
Alpha-Alumina (Al ₂ O ₃)	1344-28-1	5-10	15 (resp =5)	10 (resp = 5)	1 (resp)
Calcium oxide (CaO)	1305-78-8	3-8	5	2	2
Magnesium oxide (MgO)	1309-48-4	1-3	15	10	10
Potassium oxide (K ₂ O)	12136-45-7	<1	15	10	10
Total dust			15	10	

Please note that this product may contain the following chemical components in quantities less than 1% by weight. Under certain conditions (e.g. sandblasting in a confined space without sufficient ventilation), OSHA PELs or ACGIH TLV's could be exceeded. In these situations, employee exposure monitoring should be performed to determine exposure levels.

<u>Component</u>	<u>CAS #</u>	<u>Fed OSHA PEL (mg/m³)</u>	<u>CA OSHA PEL (mg/m³)</u>	<u>ACGIH TLV (mg/m³)</u>
Arsenic (As)	7440-38-2	0.01	0.01	0.01
Cadmium (Cd)	7440-43-9	0.2	0.2	0.01
Chromium (Cr)	7440-47-3	1	0.5	0.5
Cobalt (Co)	7440-48-4	0.1	0.02	0.02
Copper (Cu)	7440-50-8	1	0.1	1
Lead (Pb)	7439-92-1	0.05	0.05	0.05
Mercury (Hg)	7439-97-6	-	-	0.1 (skin)
Molybdenum (Mo)	7439-98-7	15	10 (inh); 3 (resp)	10 (inh); 3 (resp)

Selenium (Se)	7782-49-2	0.2	0.2	0.2
Vanadium (Vn)	1314-62-1	0.5 (resp)	0.05 (resp)	0.05 (resp)
Zinc (Zn)	1314-13-2	5 (resp)	5 (resp)	2 (resp)
Crystalline Silica (SiO ₂)	14808-60-7	0.05 (resp)	0.05 (resp)	0.025 (resp)

Footnotes:

- (1) See last page for important additional terms and conditions including disclaimer of warranties.
- (2) Concentration may vary somewhat between batches or lots. Where possible, a concentration range is indicated. Occasionally, however, levels may even fall outside of the typical concentration range.

CALIFORNIA PROPOSITION 65: WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<u>Physical State:</u>	Granular	<u>Bulk Density (loose):</u>	110 - 120 lbs/ft ³
<u>Specific Gravity:</u>	3.4 - 3.6	<u>pH:</u>	NA
<u>Appearance/ Odor:</u>	Dull Black, Odorless	<u>Vapor Pressure:</u>	NA
<u>Boiling Point:</u>	NA	<u>Vapor Density:</u>	NA
<u>Melting Point:</u>	Over 2000° F	<u>Evaporation Rate:</u>	NA

Section 10: REACTIVITY DATA

<u>Stability:</u>	Stable
<u>Incompatibilities (Materials to Avoid):</u>	Strong mineral acids
<u>Hazardous Thermal Decomposition Products:</u>	None Expected
<u>Polymerization:</u>	Will not occur

Section 11: TOXICOLOGICAL INFORMATION

Proper precautions should be taken to avoid any health hazard. A health hazard may occur if limits for air contaminants exceed PEL limits as 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 all abrasive blasting operations. (See below for information on potentially hazardous elements)

<u>Usual Route (s) of Entry:</u>	Inhalation of dust during handling or use
<u>Medical Conditions Possibly Aggravated By Exposure:</u>	Chronic diseases or disorders of the respiratory system. Iron silicate is not listed on the NTP, IARC, or OSHA list of carcinogens. However, please note that this product may contain chemical components that under certain conditions (e.g. sandblasting in a confined space without sufficient ventilation), could be released in concentrations that exceed OSHA PELs or ACGIH TLV's. In these situations, employee exposure monitoring should be performed to determine exposure levels.

<u>Eye Contact:</u>	Not anticipated to pose an acute or significant eye contact hazard. In the event of eye contact, flush eyes with generous amounts of water.
<u>Skin Contact:</u>	Not anticipated to pose an acute or significant skin contact hazard. Wash with soap and water as needed to remove from skin
<u>Inhalation:</u>	Not anticipated to pose an acute or significant inhalation hazard if proper work practices are employed to maintain dust exposure below OSHA PEL's. If overexposure occurs, remove individual to area with fresh air until symptoms cease.
<u>Ingestion:</u>	Not considered to be an ingestion hazard.

Section 12: ECOLOGICAL INFORMATION

Procedures to Follow if Material is Released or Spilled: Using appropriate personnel protective equipment, material should be shoveled, swept, vacuumed or otherwise collected into appropriate containers.

Landfill disposal or other methods that are in accordance with local, state and federal regulations. MRI testing as shown that virgin (unused and uncontaminated) material does not exceed the Toxicity Characteristic Leaching Procedure (TCLP) hazardous waste limits per 40 CFR 261.3. Used or contaminated material should be tested in accordance with 40 CFR 262.11 or any applicable local or state regulations to determine if it is a hazardous waste and disposed of accordingly.

Section 13: DISPOSAL CONSIDERATIONS

Landfill disposal or other methods that are in accordance with local, state and federal regulations. MRI testing as shown that virgin (unused and uncontaminated) material does not exceed the Toxicity Characteristic Leaching Procedure (TCLP) hazardous waste limits per 40 CFR 261.3. SHARPSHOT[®] iron silicate abrasives are listed as approved products on the US Navy's Qualified Products List QPL-22262. However, it should be noted that virgin SHARPSHOT[®] may exceed the soluble zinc limit of 50 mg/L as currently listed in MIL-A-22262 when tested in accordance with California's Title 22 STLC procedure. Used or contaminated material should be tested in accordance with 40 CFR 262.11 or any applicable local or state regulations to determine if it is a hazardous waste and disposed of accordingly.

Section 14: TRANSPORT INFORMATION

- DOT** Not regulated as a hazardous material by DOT.
- IATA** Not regulated as dangerous goods.
- IMDG** Not regulated as dangerous goods.
- TDG** Not regulated as dangerous goods.

Section 15: REGULATORY INFORMATION

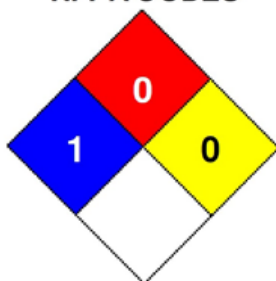
See above

Section 16: OTHER INFORMATION

If material is being used for abrasive air blasting, proper protective clothing, eye protection and respiratory protection should be used in accordance with OSHA regulations. If air blasting is being performed in confined area, proper ventilation should be used in accordance with OSHA regulations.

NFPA Ratings:

NFPA CODES



Abbreviations:

NA = Not Applicable

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

We believe that Minerals Research, Inc.'s (MRI) SHARPSHOT[®] iron silicate products are not hazardous chemicals as defined by the U.S. Federal Occupational Safety and Health Hazard Communication Standard 29 CFR 1910.1200 (c). However, this should not be construed as a warranty that any MRI product is or is not a hazardous chemical under any applicable safety, or environmental statute, rule, or regulation. The use or application of any MRI 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 MRI has no control over how the MRI product is used, nor 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 MRI product conforms with applicable safety and/or environmental statutes, rules or regulation. All sales of this product are subject to MRI's standard terms and conditions of sale. Further, MRI makes no warranties as to any of its products, 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 MRI product, the buyer thereof agrees that MRI's 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 environmental restrictions or prohibitions that may apply.

SDS Creation Date: 03/16; **Revision Date:** 12/17