



Minerals Research, Inc.

SAFETY DATA SHEET

Section 1. IDENTIFICATION

PRODUCT: SHARPGUARD™ Iron Silicate Overlay Aggregates

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

Product Use: Aggregates for thin-polymer overlays

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

Creation Date: 5/20
Revision Date: 12/22

For Additional Information, Contact:

Minerals Research, Inc.
(520) 748-9362 Phone
(520) 748-9364 Fax

Section 2: HAZARDS IDENTIFICATION

Warning: 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
Barium (Ba)	7440-39-3	0.5	0.5	0.5
Beryllium (Be)	7440-41-7	0.0002	0.0002	0.00005
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	0.025	0.025
Molybdenum (Mo)	7439-98-7	15	10 (inh); 3 (resp)	10 (inh); 3 (resp)
Nickel (Ni)	7440-22-4	1	0.5	1.5
Selenium (Se)	7782-49-2	0.2	0.2	0.2
Silver (Ag)	7440-38-2	0.01	0.01	0.01
Thallium (Th)	7440-28-0	0.1	0.1	0.02
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	<0.019
Barium (Ba)	7440-39-3	<0.011
Beryllium (Be)	7440-41-7	<0.000025
Cadmium (Cd)	7440-43-9	<0.00055
Chromium (Cr)	7440-47-3	<0.0024
Cobalt (Co)	7440-48-4	<0.0057
Copper (Cu)	7440-50-8	<0.261
Lead (Pb)	7439-92-1	<0.014
Mercury (Hg)	7439-97-6	<0.0000085
Molybdenum (Mo)	7439-98-7	<0.00063
Nickel(Ni)	7440-02-0	<0.003
Selenium (Se)	7782-49-2	<0.0009
Silver (Ag)	7440-22-4	<0.0002
Thallium (Th)	7440-28-0	<0.00019
Vanadium (Vn)	1314-62-1	<0.0042
Zinc (Zn)	1314-13-2	<1
Crystalline Silica (SiO ₂)	14808-60-7	<0.1

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 personal 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).

Component	CAS #	Typical % Weight	Fed OSHA PEL (mg/m ³)	CA OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
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.

Component	CAS #	Fed OSHA PEL (mg/m ³)	CA OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Arsenic (As)	7440-38-2	0.01	0.01	0.01
Barium (Ba)	7440-39-3	0.5	0.5	0.5
Beryllium (Be)	7440-41-7	0.0002	0.0002	0.00005
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	0.025	0.025
Molybdenum (Mo)	7439-98-7	15	10 (inh); 3 (resp)	10 (inh); 3 (resp)
Nickel (Ni)	7440-22-4	1	0.5	1.5
Selenium (Se)	7782-49-2	0.2	0.2	0.2
Silver (Ag)	7440-38-2	0.01	0.01	0.01
Thallium (Th)	7440-28-0	0.1	0.1	0.02
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

Physical State:	Granular	Bulk Density (loose):	110 - 120 lbs/ft ³
Specific Gravity:	3.4 - 3.6	pH:	NA
Appearance/ Odor:	Dull Black, Odorless	Vapor Pressure:	NA

Boiling Point: NA Vapor Density: NA
Melting Point: Over 2000° F Evaporation Rate: NA

Section 10: REACTIVITY DATA

Stability: Stable
Incompatibilities (Materials to Avoid): Strong mineral acids
Hazardous Thermal Decomposition Products: None Expected
Polymerization: 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)

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. 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.

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 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 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. 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

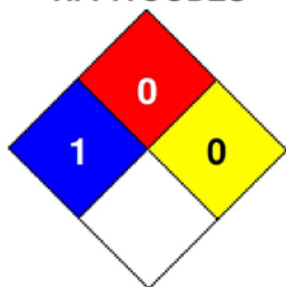
See above

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

MRI, to the best of its knowledge, believes that its Material is not a hazardous chemical according to the definition of the U. S. Federal Occupational Safety and Health Hazard Communication Standard at 29 C.F.R. 1910.1200(c). However, Supplier does not warrant that the Material is or is not a hazardous chemical under any applicable safety or environmental statute, rule, or regulation. The use or application of the Material whether or not it is used in conjunction with any other product, may result in the violation of safety or environmental statutes, rules, or regulations, since Supplier has no control over the manner of the use of the Material or the possible contaminants that may exist on any

surface to which the Supplier's Material is applied. Therefore, Supplier makes no express or implied warranty that the Material conforms with any applicable safety or environmental statutes, rules, or regulations. Supplier furnishes this information and its Material on the conditions that the person or legal entity purchasing and receiving it makes his, her, or its own determination as to the suitability of the Material for a particular purpose and assumes the risk of the use of the Material, including, but not limited to, the risks that arise from any environmental restrictions or prohibitions that may apply thereto.

MRI HAS NOT MADE AND DOES NOT MAKE ANY REPRESENTATION, WARRANTY, OR COVENANT, EXPRESS OR IMPLIED, WITH RESPECT TO THE CONDITION, QUALITY, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE OF THE MATERIAL SOLD HEREUNDER OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED. THE MATERIAL DESCRIBED IN THE ORDER IS SOLD ON AN "AS IS", "AS THEY STAND", AND "WITH ALL FAULTS", IF ANY, BASIS.

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.

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