

Safety Data Sheet Microsillex

Section 1. Identification

GHS product identifier:	Microsillex
Chemical name:	Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.
Other means of identification:	Silicon Dioxide, Aluminum Oxide, Iron Oxide, Calcium Oxide, Calcium Sulfate
Relevant identified uses of the substance or mixture and uses advised against:	Microsillex is a natural silica based product with pozzolanic properties that is used to improve the performance and durability of Portland cement concrete and mortar. Pozzolanic materials possess little or no cementitious value, but are capable of reacting chemically with calcium hydroxide at ordinary temperatures to form compounds with cementitious properties.
Suppliers details:	GCC of America, Inc. 600 South Cherry Street, Suite 1000 Glendale, CO 80246
Emergency telephone No:	For Hazardous Materials [<i>or</i> Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Section 2. Hazards Identification

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200.)

Substance Name	CAS Number	EINECS Number	Proportion % by weight
SiO ₂	14808-60-7	238-878-4	(88-90)

Portion of SiO₂ that may be considered "Crystalline Silica"*:

Substance Name	CAS Number	EINECS Number	Proportion % by weight
Quartz	14808-60-7	238-878-4	9.5 – 10.1
Cristobalite	14464-46-1	238-455-4	56.8 – 60.5
Tridymite	15468-32-3	239-487-1	4.7 – 5.7
Aluminum Oxide	1344-28-1	215-691-6	0.50 – 4.0
Iron Oxide	1309-37-1	215-168-2	0.1 – 1.0
Calcium Oxide	1305-78-8	215-138-9	0.10 – 4.0
Calcium Sulfate	13397-24-5	231-900-3	0.10 – 1.0

*Based on representative bulk sample testing, a substantial proportion of the product consists of an intermediate, partially crystalline substance that is not identical to pure crystalline cristobalite tridymite or quartz. The analysis of these materials appear to reflect partially calcined silica that was initially amorphous or incompletely crystallized. There appears to be no information (peer reviewed or otherwise) regarding the specific toxicity of such an intermediate substance. To provide the most conservative and protective disclosure and PEL, this intermediary material is reported as SiO₂.

GHS label elements

Hazard pictograms:



Signal word:

Danger

Hazard statements:

May cause skin and eye irritation.

May cause an allergic skin reaction.

May cause respiratory irritation.

Precautionary Statements

Prevention:

Wear protective gloves. Wear eye or face protection. Use only outdoors or in a well-ventilated area. Avoid breathing dust. Wash hands thoroughly after handling. May cause skin and/or eye irritation.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE: Contact with wet cement may aggravate existing skin conditions. Sensitivity to hexavalent chromium can be aggravated by exposure.

Response:

IF INHALED: Remove to fresh air. If shortness of breath or wheezing develop, seek medical attention.

IF ON SKIN: Wash with mild soap and water. Contact physician if irritation persists or later develops.

IF IN EYES: Remove contact lens. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or visual changes occur.

IF INGESTED: If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention.

Storage:

Keep container tightly closed in a dry and well-ventilated area.

Disposal:

Dispose of contents and container in accordance with all local, regional national and international regulations.

Hazards not otherwise classified:

Not applicable.

Section 3. Composition/information on ingredients

Substance/mixture:

Mixture

Chemical name:

Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.

Other means of identification:

Silicon Dioxide, Aluminum Oxide, Iron Oxide, Calcium Oxide, Calcium Sulfate

CAS number/other identifiers

CAS number:

Product code:

Not available.

Ingredient name	%	CAS number
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SiO ₂	88-90%	14808-60-7
Portion of SiO ₂ that may be considered "Crystalline Silica":		
Quartz	9.5-10%	14808-60-7
Cristobalite	56.8-60.5%	14464-46-1
Tridymite	4.7-5.7%	15468-32-3
Aluminum Oxide	0.5-4.0%	1344-28-1
Iron Oxide	01.-1.0%	1308-37-1
Calcium Oxide	0.1-4.0%	1305-78-8
Calcium Sulfate	01.-1.0%	13397-24-5

Any concentration shown as a range is to protect confidentiality or is due to process variation.

There are not additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting to this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact:	Remove contact lens. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or visual changes occur.
Inhalation:	Remove to fresh air. If shortness of breath or wheezing develop, seek medical attention.
Skin Contact:	Wash with mild soap and water. Contact physician if irritation persists or later develops.
Ingestion:	If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.

Most important symptoms/effects, acute and delayed potential acute health effects

Eye contact:	May cause irritation or redness.
Inhalation:	May cause respiratory irritation.
Skin contact:	May cause skin irritation.
Ingestion:	May cause stomach upset.

Over-exposure signs/symptoms

Eye contact:	Adverse symptoms may include the following: pain, watering and redness
Inhalation:	Adverse symptoms may include the following: respiratory tract irritation and coughing
Skin contact:	Adverse symptoms may include the following: pain or irritation, redness and blistering may occur
Ingestion:	Adverse symptoms may include the following: stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Treat symptomatically. Contact poison treatment specialist immediate if large quantities have been ingested or inhaled.
Specific treatments:	Not applicable.
Protection of first-aiders:	No action shall be taken involving any personal risk without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media:	Do not use water get or water-based extinguishers.
Specific hazards arising from the chemical:	No specific fire or explosion hazard.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides and metal oxide/oxides
Special protective actions for fire-fighters:	None.
Special protective equipment for fire-fighters:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders:	For personal protective clothing requirements, please see Section 8.
Environmental precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has entered the environment, including waterways, soil or air. Materials can enter waterways through drainage systems.

Methods and materials for containment and cleaning up

Small spill:	Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of waste material by using a licensed waste disposal contractor.
Large spill:	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place dust in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Large spills to waterways may be hazardous due to alkalinity of the product. Dispose of waste material using a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures:	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material and keep the container tightly closed
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when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities:

A key to using the product safely requires the user to recognize that portland cement reacts chemically with water to produce calcium hydroxide which can cause severe chemical burns. Every attempt should be made to avoid skin and eye contact with cement. Do not get portland cement inside boots, shoes or gloves. Do not allow wet, saturated clothing to remain against the skin. Promptly remove clothing and shoes that are dusty or wet with cement mixtures. Launder/clean clothing and shoes before reuse. Do not enter a confined space that stores or contains portland cement unless appropriate procedures and protection are available. Portland cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Crystalline Silica (Quartz)	<p>ACGIH TLV (United States, 3/2012). TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2009). TWA: 0.05 mg/m³ 10 hours. Form: respirable dust</p> <p>OSHA PEL Z-3 (United States, 9/2005). TWA: 10mg/m³ divided by %SiO₂ + 2: Respirable TWA: 30mg/m³ divided by %SiO₂ + 2: Total</p>
Calcium oxide	<p>ACGIH TLV (United States, 3/2012). TWA: 2 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 6/2009). TWA: 2 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hours.</p>
Cristobalite and Tridymite (Other forms of crystalline silica)	<p>(CAS Mixture) OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hours. TWA: 0.15 mg/m³. Form: Total dust (1) TWA: 0.05 mg/m³. Form: Respirable (1,2)</p>
Aluminum Oxide	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m³ 8 hours. Form: Dust TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 6/2009). TWA: 5 mg/m³, (as Al) 10 hours. Form: PYRO POWDERS AND WELDING FUMES</p> <p>OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>ACGIH TLV (United States, 2011). TWA: 1 mg/m³, (Respirable fraction)</p>
Iron Oxide	<p>OSHA PEL (United States, 6/2010). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>ACGIH TLV</p>

	TWA: 5 mg/m ³ 8 hours. Respirable Fraction
Calcium Sulfate	<p>OSHA (PEL) [United States] TWA: 15 (mg/m³) from Inhalation Total TWA: 5 (mg/m³) Inhalation Respirable.</p> <p>NIOSH [United States] TWA: 10 (mg/m³) Inhalation Total. TWA: 5 (mg/m³) Inhalation Respirable.</p> <p>ACGIH (TLV) [United States] TWA: 10 (mg/m³) from Inhalation Total. TWA: 10 STEL: 20 (mg/m³)</p>

Appropriate engineering controls: Use only with adequate ventilation. If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures: Clean water should always be readily available for skin and (emergency) eye washing. Periodically wash areas contacted by portland cement with a pH neutral soap and clean, uncontaminated water. If clothing becomes saturated with portland cement, garments should be removed and replaced with clean, dry clothing.

Eye/face protection: To prevent eye contact, wear safety glasses with side shields, safety goggles or face shields when handling dust or wet cement. Wearing contact lenses when working with cement is not recommended.

Skin protection

Hand protection: Use impervious, waterproof, abrasion and alkali-resistant gloves. Do not rely on barrier creams in place of impervious gloves.

Body protection: Keep skin covered and work outdoors where feasible.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved. Footwear and other gear to protect the skin should be approved by a specialist before handling this product.

Respiratory protection: Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical State: Solid. [Powder.]

Color: White.

Odor: Odorless.

Odor threshold: Not available.

pH: 6-7 [Conc. (% w/w): 1%]

Melting point: Not available.

Boiling point: >1000°C (>1832°F)

Flash point: Not flammable. Not combustible.

Burning time: Not available.

Burning rate: Not available.

Evaporation rate: Not applicable.

Flammability (solid, gas): Not applicable.

Lower and upper explosive (flammable) limits: Not applicable.

Vapor pressure: Not applicable.

Vapor density: Not applicable.

Relative density: 2.3

Solubility: Not applicable.

Solubility in water: Not applicable.

Partition coefficient: n-octanol/water: Not applicable.

Auto-ignition temperature: Not applicable.

Decomposition temperature: Not available.

SADT: Not available.

Viscosity: Not applicable.

Section 10. Stability and reactivity

Reactivity:

Chemical stability: Crystalline silica is stable under ordinary conditions.

Possibility of hazardous reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid: In contact with water, will result in hydration to produce caustic calcium hydroxide

Incompatible materials: Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride or oxygen difluoride may cause fires and/or explosions.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity: Microsillex = Not available

Irritation/Corrosion:
Skin: May cause skin irritation.
Eyes: May cause eye irritation or redness.
Respiratory: May cause respiratory tract irritation.

Sensitization: There are not data available

Mutagenicity: There are no data available.

Carcinogenicity:

Classification

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Quartz	-	-	A2	Known to be a human carcinogen

Reproductive toxicity: There are no data available.

Teratogenicity: There are no data available.

Specific target organ toxicity (single exposure)

Name	Category	Route of Exposure	Target Organs
Calcium oxide	Category 3	Inhalation and skin contact	Respiratory tract irritation, skin irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of Exposure	Target Organs
Quartz	Category 1	Inhalation	Respiratory tract and kidneys

Aspiration hazard: There are not data available.

Information on likely routes of exposure

Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:
Eye contact: May cause irritation or redness.
Inhalation: May cause respiratory irritation.
Skin contact: May cause skin irritation.
Ingestion: May cause stomach upset.

Symptoms related to the physical, chemical and toxicological characteristics:
Eye contact: Adverse symptoms may include the following: pain, watering, redness
Inhalation: Adverse symptoms may include the following: respiratory tract irritation, coughing
Skin contact: Adverse symptoms may include the following: pain or irritation, redness, blistering may occur
Ingestion: Adverse symptoms may include the following: stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure:

Short term exposure

Potential immediate effects: No known significant effects or critical hazards.

Potential delayed effects: No known significant effects or critical hazards.

Long term exposure

Potential immediate effects: No known significant effects or critical hazards.

Potential delayed effects: No known significant effects or critical hazards.

Potential chronic health effects:

Inhaled: Prolonged Repeated and prolonged overexposures to product or dust containing crystalline silica can cause silicosis (scarring of the lung) and increase the risk of bronchitis, tuberculosis, lung cancer, renal disease and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

Carcinogenicity: This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. Excessive exposure to crystalline silica can cause silicosis, a non-cancerous lung disease.

Mutagenicity: No known significant effects or critical hazards.

Teratogenicity: No known significant effects or critical hazards.

Developmental effects: No known significant effects or critical hazards.

Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity:

Acute toxicity estimates: There are no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Calcium oxide	Chronic NOEC 100 mg/L Fresh water	Fish-Oreochromis niloticus-Juvenile (Fledging, Hatchling, Weanling)	46 Days

Persistence and degradability:

There are no data available.

Bioaccumulative potential:

There are no data available.

Mobility in soil:

Soil/water partition coefficient (Koc): Not available.

Other adverse effects:

No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods:

Dispose of material as inert, non-metallic mineral in conformance with local, state and federal regulations. The material should be covered to minimize generation of airborne dust. Crystalline silica is not a RCRA hazardous waste.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	None.	None.	None.
Additional information	-	-	-

Special precautions for user:

There are not special requirements for storage or transport

Transport in bulk according

Not available.

to Annex II of MARPOL 73/78
and the IBC code:

Section 15. Regulatory information

U.S. Federal regulations: TSCA 6 final risk management:
United States inventory (TSCA 8b):
Clean Water Act (CWA) 307:
CERCLA: Not listed

Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs) — Not listed

Clean Air Act Section 602: Class I Substances — Not listed

Clean Air Act Section 602: Class II Substances — Not listed

DEA List I Chemicals: (Precursor Chemicals) — Not listed

DEA List II Chemicals: (Essential Chemicals) — Not listed

SARA 311/312

Classification: Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Quartz	88-90%	No.	No.	No.	No.	Yes.
Calcium Oxide	0.1-4.0%	No.	No.	No.	Yes.	No.

SARA 313

RCRA Hazardous Waste: No.

State regulations

California Prop. 65

WARNING: This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the above warning in the absence of definitive testing to prove the defined risks do not exist.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Quartz	Yes.	No.	No.	No.

International regulations

International lists: Canadian Domestic Substances List (DSL): Portland cement is included on the DSL.
Mexico Inventory (INSQ): All components are listed or exempted.

Section 16. Other information

History

Date of issue 09/15/2015:

Version: 15A

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Revised Section(s):

Not applicable.

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of Microsillex as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with portland cement to produce portland cement products. Users should review other relevant material safety data sheets before working with this portland cement or working on portland cement products, for example, portland cement concrete.

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Abbreviations

ACGIH – American Conference of Governmental Industrial Hygienists
CAS – Chemical Abstract Service
CERCLA – Comprehensive Emergency Response and Comprehensive Liability Act
CFR – Code of Federal Regulations
DOT – Department of Transportation
GHS – Globally Harmonized System
HEPA – High Efficiency Particulate Air
IATA – International Air Transport Association
IARC – International Agency for Research on Cancer
IMDG – International Maritime Dangerous Goods
NIOSH – National Institute of Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OSHA – Occupational Safety and Health Administration
PEL – Permissible Exposure Limit
REL – Recommended Exposure Limit
RQ – Reportable Quantity
SARA – Superfund Amendments and Reauthorization Act
SDS – Safety Data Sheet
TLV – Threshold Limit Value
TPQ – Threshold Planning Quantity
TSCA – Toxic Substances Control Act
TWA – Time-Weighted Average
UN – United Nations