

MATERIAL SAFETY DATA SHEET

Silica Coated Magnetic Beads

Section I - Chemical Products & Company Identification

Bioneer Corporation

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Phone: +82-42-930-8594

Creation Date: 05/08

Trade Name/Synonyms: Silica Coated Magnetic Beads

Chemical Family: Iron Oxide and Silica

Section 2 - Composition/Information On Ingredients

Active Component: **Iron Oxide**

Description: (CAS Number)

Iron Oxide (CAS Number: 1317-61-9); approximately 80%

Silica (CAS Number: 7631-86-9); approximately 20%

Section 3 - Hazards Identification

Hazard Description:

Xi Irritant

Information pertaining to particular dangers for man and environment

R33 Danger of cumulative effects.

R36/37/38 Irritating to eyes, respiratory system and skin.

NFPA Ratings (Scale 0-4):

Health = 1

Flammability = 0

Reactivity = 0

Section 4: First Aid Measures

Skin Contact: Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

Eye Contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

Ingestion: Seek immediate medical advice.

Inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

Section 5: Fire Fighting Measures

Fire: Product is not flammable.

Explosion: Not considered to be an explosion hazard.

Suitable Extinguishing Agents: Use fire fighting measures that suit the surrounding fire.

Protective Equipment: Use protective clothing and breathing equipment appropriate for the surrounding fire.

Section 6: Accidental Release Measures

Person-related safety precautions: Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

Measures for environmental protection: Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting: Ensure adequate ventilation.

Section 7 - Handling and Storage

Handling

Information for safe handling: Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace.

Information about protection against explosions and fires: The product is not flammable.

Storage

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility: Do not store together with acids.

Further information about storage conditions: Keep container tightly sealed. Store in cool, dry conditions in well sealed containers.

Section 8 - Exposure Controls/Personal Protection

Additional information about design of technical systems: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Iron oxide	mg/m³
ACGIH TLV	5; Not classified as a human carcinogen
Austria MAK	6(dust)
Denmark TWA	3.5(Fe)
Finland TWA	5 ppm (fume)
France VME	5(fume)
Germany MAK	6(fume)
Korea TLV	5
Netherlands MAC-TGG	10, 5(fume)
Norway TWA	3
Poland TWA	5(fume); 10-STEL
Sweden NGV	3.5(fume)
Switzerland MAK-W	6(fume)
United Kingdom TWA	5(Fe); 10(Fe)-STEL
	10 (rouge, total inhalable dust)
	4 (rouge, respirable dust)
OSHA PEL	15 (total dust)
	5(respirable fraction)

Personal Protective Equipment

General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid contact with the skin.

Breathing equipment: Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves. Check protective gloves prior to each use for their proper condition.

Material of gloves: The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Eye Protection: Safety glasses

Body protection: Protective work clothing

Section 9 - Physical and Chemical Properties

Description: Odorless, Black Powder

Melting point: 1565°C for Iron oxide and 1600°C for silica

Boiling point: Not determined for Iron oxide and 2230°C for silica

Vapor pressure: Not determined

Vapor density: Not determined

Flash point: Not applicable

Flammability: Not flammable

Decomposition temperature: Not determined

Danger of explosion: Product does not present an explosion hazard.

Explosion limits: Not determined

Solubility in water: insoluble

Section 10 - Stability and Reactivity

Thermal decomposition/condition to be avoided: Decomposition will not occur if used and stored according to specifications.

Materials to be avoided: Strong Acids

Dangerous reactions: No dangerous reactions known

Dangerous products of decomposition: No dangerous decompositions products known.

Section 11 - Toxicology Information

Acute toxicity:

Primary irritant effect:

On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Other information (about experimental toxicology):

Tumorigenic effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity: Iron compounds may cause vomiting, diarrhea, pinkurine, blackstool, and liver damage. May cause damage to the kidneys.

Irritating to the respiratory tract, they may cause pulmonary fibrosis if dusts are inhaled.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances(RTECS) reports the following effects in laboratory animals:

Brain and Coverings – other degenerative changes.

Blood – changes in serum composition (e.g. TP, bilirubin, cholesterol).

Biochemical – Enzyme inhibition, induction, or change in blood or tissue

Levels – true cholinesterase.

Tumorigenic – equivocal tumorigenic agent by RTECS criteria.

Tumorigenic – tumors at site of application.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

IARC-3: Not classifiable as to carcinogenicity to humans.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

Section 12 - Ecological Information

General notes:

Do not allow material to be released to the environment without proper governmental permits.

Section 13 - Disposal Information

Product:

Recommendation

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packaging:

Recommendation: Disposal must be made according to official regulations.

Section 14 - Transportation Information

Not a hazardous material for transportation.

Section 15 - Regulatory Information

Product related hazard information:

Hazard symbols: Xi Irritant

Risk phrases:

33 Danger of cumulative effects.

36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

37 Wear suitable gloves.

National regulations:

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory. All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use: For use only by technically qualified individuals.

Section 16 – Other Information

The aforementioned information is believed to be correct, but does not purport to be all-inclusive and shall be only as a guide. Bioneer shall not be held liable for any damage resulting from handling or from contact with the above product.