1 Identification

Product identifier
Product name: Silicon carbide, beta

Stock number: 44647
CAS Number: 409-21-2
EC number: 206-991-8

Relevant identified uses of the substance or mixture and uses advised against.
No further relevant information available.

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:
During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Irritant
R40: Limited evidence of a carcinogenic effect.

Information concerning particular hazards for human and environment: Not applicable

Hazard pictograms

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labeled according to the CLP regulation.

Signal word Warning

Hazard statements
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
H335 May cause respiratory irritation.
Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 IF ON SKIN: Wash with plenty of water/…
P321 Specific treatment (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification
D2B - Toxic material causing other toxic effects

Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FIRE</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Health (acute effects) = 1  
Flammability = 1  
Physical Hazard = 1

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients
Chemical characterization: Substances
CAS# Description:
409-21-2 Silicon carbide
Identification number(s):
EC number: 206-991-8

4 First-aid measures
Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

After skin contact
Immediately wash with water and soap and rinse thoroughly. Seek immediate medical advice.

After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing
Seek medical treatment.

Information for doctor
Most important symptoms and effects, both acute and delayed
No further relevant information available.

Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Fire-fighting measures
Extinguishing media
Suitable extinguishing agents
Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Silicon oxide

Advice for firefighters
Protective equipment:
Wear self-contained respirator.
6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation

Environmental precautions:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow product to reach sewage system or any water course.
Do not allow to penetrate the ground/soil.

Methods and material for containment and cleaning up:
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

Prevention of secondary hazards: No special measures required.

Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Precautions 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: No information known.

Conditions for safe storage, including any incompatibilities

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

Information about storage in one common storage facility: Store away from oxidizing agents.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

Specific end use(s) No further relevant information available.

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.

Control parameters

Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>409-21-2 Silicon carbide (100.0%)</td>
<td>Long-term value: 15* 5** mg/m³ fibrous dust: *total dust **respirable fraction</td>
<td></td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Long-term value: 10* 5** mg/m³ *total dust **respirable fraction</td>
<td></td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Long-term value: 10* 3** mg/m³ fibrous dust:0.1 f/cc; nonfibrous:*inh.,**resp.</td>
<td></td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>Long-term value: 10* 3** mg/m³ *inhalable, **respirable</td>
<td></td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>Long-term value: 10* 3** mg/m³, 0.1f/cc*** ppm nonfibrous: *inh.,**resp.; ***fibrous, resp.</td>
<td></td>
</tr>
</tbody>
</table>

Additional information: No data

Exposure controls

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 and skin.
Maintain an ergonomically appropriate working environment.

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

(Contd. on page 4)
Recommended filter device for short term use:
Use a respirator with type N95 (USA) or FFP (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:
Impervious gloves
Check protective gloves prior to each use for their proper condition. The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Material of gloves: Nitrile rubber, NBR

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:
Form: Various forms (powder/flake/crystalline/beads, etc.)
Color: Grey to black
Odor: Odorless
Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: 2700 °C (4892 °F)
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Flammability (solid, gaseous): Not determined
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined

Danger of explosion: Not determined.

Explosion limits:
Lower: Not determined
Upper: Not determined
Vapor pressure: Not applicable.
Density at 20 °C (68 °F): 3.16 g/cm³ (26.37 lbs/gal)
Relative density: Not determined.
Vapor density: Not applicable.
Evaporation rate: Not applicable.
Solubility in / Miscibility with
Water: Insoluble
Partition coefficient (n-octanol/water): Not determined.

Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.

Other information: No further relevant information available.

10 Stability and reactivity

Reactivity: No information known.

Chemical stability: Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions: Reacts with strong oxidizing agents

Incompatible materials: Oxidizing agents

Hazardous decomposition products:
Carbon monoxide and carbon dioxide
Silicon oxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
LD/LC50 values that are relevant for classification: No data

(Contd. on page 5)
38. Skin irritation or corrosion: Causes skin irritation.
   Eye irritation or corrosion: Causes serious eye irritation.

39. Sensitization: No sensitizing effects known.
    Germ cell mutagenicity: No effects known.

40. Carcinogenicity:
    Suspected of causing cancer.

ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: May cause respiratory irritation.

Aspiration hazard: No effects known.

Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

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

12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability: No further relevant information available.

Behavior in environmental systems:
Bioaccumulative potential: No further relevant information available.
Mobility in soil: No further relevant information available.

Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Avoid transfer into the environment.

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

Other adverse effects: No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation: Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information

<table>
<thead>
<tr>
<th>UN-Number</th>
<th>DOT, ADR, ADN, IMDG, IATA</th>
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<thead>
<tr>
<th>Environmental hazards:</th>
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<tr>
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<tr>
<th>Special precautions for user</th>
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<tbody>
<tr>
<td></td>
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<tr>
<th>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</th>
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<tr>
<td></td>
<td>Not applicable</td>
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### Safety Data Sheet acc. to OSHA HCS

**Product name:** Silicon carbide, beta

<table>
<thead>
<tr>
<th>Transport/Additional information:</th>
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<tbody>
<tr>
<td>DOT</td>
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<tr>
<td>Marine Pollutant (DOT):</td>
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<tr>
<td>UN &quot;Model Regulation&quot;:</td>
</tr>
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</table>

**15 Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

- **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).
  - SARA Section 313 (specific toxic chemical listings) Substance is not listed.

- **California Proposition 65**
  - Prop 65 - Chemicals known to cause cancer Substance is not listed.
  - Prop 65 - Developmental toxicity Substance is not listed.
  - Prop 65 - Developmental toxicity, female Substance is not listed.
  - Prop 65 - Developmental toxicity, male Substance is not listed.

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

- **Other regulations, limitations and prohibitive regulations**
  - Substances of very high concern (SVHC) according to REACH, Article 57 Substance is not listed.
  - REACH - Pre-registered substances Substance is listed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Health, Safety and Environmental Department.

**Abbreviations and acronyms:**

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- DOT: US Department of Transportation
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- HMIS: Hazardous Materials Identification System (USA)
- WHMIS: Workplace Hazardous Materials Information System (Canada)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent