

SAFETY DATA SHEET

Product Name/Description: Alumina, Fused Aluminum Oxide White

1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

White Fused Aluminum Oxide

CAS Number: 1344-28-1

EC number: 215-691-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture Industrial uses.

1.3 Other means of identification

1.4 Details of the supplier of the Safety Data Sheet- Manufacturer/Supplier:

Company Name: AGSCO Corporation

Emergency number: 847-520-4455

Address: 160 West Hintz Road

Information number: 847-520-4455

Wheeling Illinois 60090

Date prepared: November 2014

2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

The following Hazard Statements are applicable only according to OSHA regulations within the United States. These Statements are not applicable for the CLP regulation (1272/2008/EC) in the EU: H351.

health hazard



Carc. 2 H351 Suspected of causing cancer.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC: Not applicable.

Information concerning particular hazards for human and environment:

The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Note for United States only:

If a Category 2 carcinogen ingredient is present in the mixture at a concentration between 0.1% and 1%, information is required on the SDS for a product. However, a label warning is optional.

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The substance is classified and labelled according to the Globally Harmonized System within the United States (GHS).

This product does not have a classification according to the CLP regulation. The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

Not applicable within the EU; applicable only for North America.



GHS08

Signal word

Not applicable within the EU; applicable only for North America.
Warning

Hazard-determining components of labelling:

titanium dioxide

Hazard statements

The following Hazard Statements are applicable only according to OSHA regulations within the United States. These statements are not applicable for the CLP regulation (1272/2008/EC) in the EU: H351.

H351 Suspected of causing cancer.

Precautionary statements

Applicable only within the United States (USA)

P281	Use personal protective equipment as required.
P202	Do not handle until all safety precautions have been read and understood.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national and international regulations.

Hazard description:

WHMIS-symbols: Not hazardous under WHMIS.

NFPA ratings (scale 0 - 4)

Health = 0

Fire = 0

Reactivity = 0



HMIS-ratings (scale 0 - 4)

Health = 0

Fire = 0

Reactivity = 0



HMIS Long Term Health Hazard Substances

13463-67-7 titanium dioxide

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

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3: COMPOSITION/INFORMATION ON INGREDIENTS


3.1 Substances

CAS No. Description:

1344-28-1 aluminum oxide

Identification number(s)

EC number: 215-691-6

· Dangerous components:		
CAS: 13463-67-7	titanium dioxide (classification relevant for USA/Canada only)	< 1%
EINECS: 236-675-5	 Carc. 2, H351	

4: FIRST AID MEASURES

4.1 Description of first aid measures

General information: No special measures required.

After inhalation:

Supply fresh air; consult doctor in case of complaints.

Provide oxygen treatment if affected person has difficulty breathing.

After skin contact:

Brush off loose particles from skin. Clean with water and soap.

If skin irritation continues, consult a doctor.

After eye contact:

Immediately remove contact lenses if possible.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing:

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

4.2 Most important symptoms and effects, both acute and delayed

Coughing

Gastric or intestinal disorders.

Breathing difficulty

Hazards Danger of impaired breathing.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing agents: Use fire extinguishing methods suitable to surrounding conditions.

For safety reasons unsuitable extinguishing agents: None.

5.2 Special hazards arising from the substance or mixture No further relevant information available.

5.3 Advice for firefighters

Protective equipment:

Wear self-contained respiratory protective device. Wear fully protective suit.

Additional information No further relevant information available.

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6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use respiratory protective device against the effects of fumes/dust/aerosol. For large spills, wear protective clothing. Avoid formation of dust. Ensure adequate ventilation

6.2 Environmental precautions: No special measures required.

6.3 Methods and material for containment and cleaning up:

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Dispose contaminated material as waste according to item 13.

6.4 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

7.1 Precautions for safe handling

Prevent formation of dust.

Any unavoidable deposit of dust must be regularly removed. Use only in well ventilated areas.

Avoid breathing dust.

Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.

Information about fire - and explosion protection: No special measures required.

7.2 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. Store away from foodstuffs.

Further information about storage conditions:

Store in cool, dry conditions in well-sealed receptacles. Store receptacle in a well ventilated area.

Protect from humidity and water. This product is hygroscopic.

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

8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:	
1344-28-1 aluminum oxide	
PEL (USA)	Long-term value: 15*; 15** mg/m ³ *Total dust; ** Respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV (USA)	Long-term value: 1* mg/m ³ as Al; *as respirable fraction
EL (Canada)	Long-term value: 1,0 mg/m ³ respirable, as Al
EV (Canada)	Long-term value: 10 mg/m ³ total dust
13463-67-7 titanium dioxide	

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PEL (USA)	Long-term value: 15* mg/m ³ *total dust
REL (USA)	See Pocket Guide App. A
TLV (USA)	Long-term value: 10 mg/m ³ withdrawn from NIC
EL (Canada)	Long-term value: 10* 3** mg/m ³ *total dust;**respirable fraction; IARC 2B
EV (Canada)	Long-term value: 10 mg/m ³ *total dust

DNELs No further relevant information available.

PNECs No further relevant information available.

Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals. Keep away from foodstuffs, beverages and feed. Wash hands before breaks and at the end of work. Avoid contact with the eyes. Avoid close or long term contact with the skin. Do not inhale dust / smoke / mist.

Respiratory protection:

Suitable respiratory protective device recommended.

Use suitable respiratory protective device in case of insufficient ventilation

For spills, respiratory protection may be advisable.

Protection of hands:

Wear gloves for the protection against mechanical hazards according to NIOSH or EN 388. Gloves are advised for repeated or prolonged contact.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Eye protection:



Safety glasses

Body protection:

Not required under normal conditions of use.

Protection may be required for spills.

Limitation and supervision of exposure into the environment: No special requirements.

Risk management measures: No special requirements.

9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Granulate
Color:	White
Odor:	Odorless
Odor threshold:	Not determined.
pH Value:	Slightly alkaline
Change in condition	

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Melting point/Melting range:	3704 °F / 2040 °C
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Product is not flammable.
Auto/Self-ignition temperature:	Not determined.
Decomposition temperature:	Not determined.
Self-igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not applicable.
Density at 20 °C:	3.97 g/cm ³
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
No further relevant information available.	

10: STABILITY AND REACTIVITY

10.1 Reactivity

10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Reacts with strong acids.

Reacts with oxidizing agents.

Reacts with strong alkali.

10.4 Conditions to avoid:

No further relevant information available.

10.5 Incompatible materials:

No further relevant information available.

10.6 Hazardous decomposition products:

Toxic metal oxide smoke

11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

Primary irritant effect:

on the skin: No irritant effect.

on the eye: Slight irritant effect on eyes.

Sensitization: No sensitizing effects known.

Repeated dose toxicity: May cause damage to organs through prolonged or repeated exposure.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

Based on IARC classifications and not the CLP classification.

Carc. 2

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12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity: Generally not hazardous for water

12.2 Persistence and degradability

Inorganic product is not eliminable from water by means of biological cleaning processes.

12.3 Bioaccumulative potential Does not accumulate in organisms.

12.4 Mobility in soil No further relevant information available.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Recommendation

Smaller quantities can be disposed of with household waste. Can be reused after reprocessing.

Contact waste processors for recycling information.

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

Uncleaned packaging:

Recommendation Disposal must be made according to official regulations.

14: TRANSPORT INFORMATION

14.1 UN-Number

DOT, ADR, ADN, IMDG, IATA

Not Regulated

14.2 UN proper shipping name

DOT, ADR, ADN, IMDG, IATA

Not Regulated

14.3 Transport hazard class(es)

DOT, ADR, ADN, IMDG, IATA

Class

Not Regulated

14.4 Packing group

DOT, ADR, IMDG, IATA

Not Regulated

14.5 Environmental hazards:

Marine pollutant:

No

14.6 Special precautions for user

Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

UN "Model Regulation":

15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture United States (USA)

SARA

Section 355 (extremely hazardous substances):	Substance is not listed.
Section 313 (Specific toxic chemical listings):	Substance is not listed.
TSCA (Toxic Substances Control Act):	Substance is listed.

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Proposition 65 (California):

Chemicals known to cause cancer:	13463-67-7 titanium dioxide
Chemicals known to cause reproductive toxicity for females:	Substance is not listed.
Chemicals known to cause reproductive toxicity for males:	Substance is not listed.
Chemicals known to cause developmental toxicity:	Substance is not listed.

Carcinogenic Categories

EPA (Environmental Protection Agency)		Substance is not listed
IARC (International Agency for Research on Cancer)	2B	13463-67-7 titanium dioxide
TLV (Threshold Limit Value established by ACGIH)	A4	1344-28-1 aluminum oxide
	A4	13463-67-7 titanium dioxide
NIOSH-Ca (National Institute for Occupational Safety and Health)		13463-67-7 titanium dioxide

Canada

Canadian Domestic Substances List (DSL)	Substance is listed
Canadian Ingredient Disclosure list (limit 0.1%)	Substance is not listed
Canadian Ingredient Disclosure list (limit 1%)	Substance is listed

Other regulations, limitations and prohibitive regulations

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Substances of very high concern (SVHC) according to REACH, Article 57

Substance is not listed.

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

16: OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

H351 Suspected of causing cancer.

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)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

Carc. 2: Carcinogenicity, Hazard Category 2

Safety Data Sheet



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name	• Selenium (<1mm diameter)
Synonyms	• Sélénium (<1 mm de diamètre)
CAS Number	• 7782-49-2
Product Code	• 1590
EC Number	• 231-957-4
EU Index Number	• 034-001-00-2
Molecular Formula	• Se
Molecular Weight	• 78.96

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s)	• Industrial uses : Use of substance as such in preparations at industrial sites; Manufacture of basic metals, including alloys; Service life (professional worker): use of metal containing articles. Article service life: Industrial use by workers with abrasive techniques. Industrial use as additive in glass manufacture; Industrial use in the vulcanization of rubber. Industrial use in thin film production by physical vapor deposition. Industrial use of coatings; Used as intermediate in the manufacture of metal compounds
Use(s) advised against	• No specific uses advised against are identified

1.3 Details of the supplier of the safety data sheet

Manufacturer	• 5N Plus Inc 4385 Garand Street St Laurent, Quebec H4R 2B4 Canada www.5nplus.com MSDS@5nplus.com
Telephone (General)	• (514) 856-0644 ext 2395

1.4 Emergency telephone number

- For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 CCN14093 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

- | | |
|----------------|---|
| CLP | <ul style="list-style-type: none">• Acute Toxicity Inhalation 3 - H331• Acute Toxicity Oral 3 - H301• Hazardous to the aquatic environment Chronic 4 - H413• Specific Target Organ Toxicity Repeated Exposure 2 - H373 |
| DSD/DPD | <ul style="list-style-type: none">• Toxic (T) <p>R33, R53, R23/25</p> |

2.2 Label Elements

CLP

DANGER



- Hazard statements**
- H373 - May cause damage to organs through prolonged or repeated exposure.
 - H413 - May cause long lasting harmful effects to aquatic life
 - H301+H331 - Toxic if swallowed or if inhaled

Precautionary statements

- | | |
|-------------------------|--|
| Prevention | <ul style="list-style-type: none">• P273 - Avoid release to the environment.• P260 - Do not breathe dust, fume, gas, mist, vapours and/or spray.• P270 - Do not eat, drink or smoke when using this product.• P271 - Use only outdoors or in a well-ventilated area.• P264 - Wash thoroughly after handling. |
| Response | <ul style="list-style-type: none">• P314 - Get medical advice/attention if you feel unwell.• P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.• P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. |
| Storage/Disposal | <ul style="list-style-type: none">• P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.• P403+P233 - Store in a well-ventilated place. Keep container tightly closed.• P405 - Store locked up. |

DSD/DPD



- Risk phrases**
- R33 - Danger of cumulative effects.
 - R53 - May cause long-term adverse effects in the aquatic environment.
 - R23/25 - Toxic by inhalation and if swallowed.
- Safety phrases**
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
 - S37 - Wear suitable gloves.

2.3 Other Hazards

- | | |
|----------------|--|
| CLP | <ul style="list-style-type: none">• The PBT and vPvB criteria of Annex XIII to the regulation (EC) 1907/2006 does not apply to inorganic substances. |
| DSD/DPD | <ul style="list-style-type: none">• None |

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Acute Toxicity Inhalation 3 - H331
Acute Toxicity Oral 3 - H301
Specific Target Organ Toxicity Repeated Exposure 2 - H373

2.2 Label elements

OSHA HCS 2012

DANGER

- Hazard statements**
- May cause damage to organs through prolonged or repeated exposure. - H373
May cause long lasting harmful effects to aquatic life - H413
Toxic if inhaled - H331
Toxic if swallowed - H301

Precautionary statements

- Prevention**
- Avoid release to the environment. - P273
Do not breathe dust, fume, gas, mist, vapours and/or spray. - P260
Do not eat, drink or smoke when using this product. - P270
Use only outdoors or in a well-ventilated area. - P271
Wash thoroughly after handling. - P264
- Response**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. - P301+P310
- Storage/Disposal**
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501
Store in a well-ventilated place. Keep container tightly closed. - P403+P233
Store locked up. - P405

2.3 Other hazards

OSHA HCS 2012

- None

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Not classified

2.2 Label elements

WHMIS

- No label element(s) required.

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

Composition			
Chemical Name	Identifiers	%	Classifications According to Regulation/Directive
Selenium	CAS:7782-49-2 EC Number:231-957-4 REACH:01-2119981706-25 EU Index:034-001-00-2	>= 99.9%	WHMIS: EU DSD/DPD: R23/25; R33; R53; Toxic(T) EU CLP: Acute Tox. Inhal. 3; Acute Tox. Oral 3; Aquatic Chronic 4; STOT RE 2 OSHA HCS 2012: Acute Tox. Inhal. 3; Acute Tox. Oral 3; STOT RE 2

3.2 Mixtures

- Material does not meet the criteria of a mixture.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin

- IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion

- Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

4.4 Other information

- CAUTION ! First aid personnel must be aware of own risk during rescue !

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- Sand.
Metal fire Powders.

Unsuitable Extinguishing Media

- DO NOT use water if avoidable.

Firefighting Procedures

- Confining and smothering metal fires is preferable rather than applying water. Corrosive substances in contact with metals may produce flammable hydrogen gas.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Hazardous Combustion Products

- Fire or high temperature may create : Toxic gases/vapours/fumes of metal oxides or oxides.

5.3 Advice for firefighters

- Do not allow to enter drains, sewers or watercourses.
Dike and collect extinguishing water.

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Warn everybody of potential hazards and evacuate if necessary. Avoid breathing vapors, dust, or spray mist. Avoid contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.

Emergency Procedures

- Avoid generation and spreading dust. Do not allow to enter drains, sewers or watercourses.

6.2 Environmental precautions

- Avoid discharge into drains, water courses or onto the ground. Dike and collect extinguishing water. Avoid generation and spreading dust.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Allow product to cool/solidify and pick up as a solid. Avoid generating dust. Collect powder using special dust vacuum cleaner with particle filter or carefully sweep into closed container. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container. For waste disposal, see section 13.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Avoid handling which leads to dust formation. Avoid inhalation of dust and contact with skin and eyes. Avoid excessive heat for prolonged period of time. Do not handle broken packages without protective equipment. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Change work clothing daily before leaving the work place. Wash contaminated clothing before reuse. Provide eye wash fountain in work area. have emergency shower available.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Store in a cool, dry, well-ventilated place. Keep at a temperature not exceeding 30°C.

Incompatible Materials or Ignition Sources

- Do not store together with foodstuffs. Keep away from reducing agents such as zinc, alkali metals, and formic acid.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Austria	Belgium	Canada Ontario	Canada Quebec
	MAKs	Not established	0.1 mg/m ³ TWA [TMW] (inhalable fraction)	Not established	Not established	Not established

Selenium (7782-49-2)	STELs	Not established	0.3 mg/m ³ STEL [KZW] (inhalable fraction, 4 X 15 min)	Not established	Not established	Not established
	TWAs	0.2 mg/m ³ TWA	Not established	0.2 mg/m ³ TWA	0.2 mg/m ³ TWA	0.2 mg/m ³ TWAEV
Exposure Limits/Guidelines (Con't.)						
	Result	China	Denmark	Finland	Germany DFG	Germany TRGS
Selenium (7782-49-2)	STELs	0.3 mg/m ³ STEL	Not established	0.3 mg/m ³ STEL	Not established	Not established
	TWAs	0.1 mg/m ³ TWA	0.1 mg/m ³ TWA	0.1 mg/m ³ TWA	Not established	0.05 mg/m ³ TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, inhalable fraction, exposure factor 1)
	Ceilings	Not established	Not established	Not established	0.16 mg/m ³ Peak (inhalable fraction)	Not established
	MAKs	Not established	Not established	Not established	0.02 mg/m ³ TWA MAK (inhalable fraction)	Not established
Exposure Limits/Guidelines (Con't.)						
	Result	Ireland	Malaysia	Manufacturer	NIOSH	Poland
Selenium (<1mm diameter) (7782-49-2)	TWAs	0.1 mg/m ³ TWA	0.2 mg/m ³ TWA	Not established	0.2 mg/m ³ TWA	0.1 mg/m ³ TWA [NDS]
	STELs	Not established	Not established	Not established	Not established	0.3 mg/m ³ STEL [NDSch]
	DNEL	Not established	Not established	7 mg/kg DNEL , Workers; hazard via dermal route: systemic effects; long term; mg/kg bw/day .05 mg/m ³ DNEL , Workers; hazard via inhalation route: systemic effects; long term .0043 mg/kg DNEL , General population; hazard via oral route: systemic effects; long term; mg/kg bw/day 4.3 mg/kg DNEL , General population; hazard via dermal route: systemic effects; long term; mg/kg bw/day .015 mg/m ³ DNEL , General population; hazard via inhalation route: systemic effects; long term	Not established	Not established
				2.67 µg/L PNEC , Aqua (freshwater)		

				2 µg/L PNEC , Aqua (marinewater) 5.5 µg/L PNEC , Aqua (intermittent releases) 8.2 mg/kg PNEC , Sediment (freshwater); mg/kg sediment dw 6.2 mg/kg PNEC , Sediment (marinewater); mg/kg sediment dw .1 mg/kg PNEC , Soil; mg/kg soil dw 1500 µg/L PNEC , STP		
	PNEC	Not established	Not established		Not established	Not established
Exposure Limits/Guidelines (Con't.)						
	Result	Portugal	Russia	Spain	Sweden	Switzerland
Selenium (7782-49-2)	MAKs	Not established	Not established	Not established	Not established	0.02 mg/m3 TWA [MAK] (inhalable)
	STELs	Not established	Not established	Not established	Not established	0.16 mg/m3 STEL [KZW] (inhalable, 4 X 15)
	TWAs	0.2 mg/m3 TWA [VLE-MP]	2 mg/m3 TWA (aerosol)	0.1 mg/m3 TWA [VLA-ED]	0.1 mg/m3 LLV (total dust)	Not established
Exposure Limits/Guidelines (Con't.)						
	Result	United Kingdom				
Selenium (7782-49-2)	STELs	0.3 mg/m3 STEL (calculated)				
	TWAs	0.1 mg/m3 TWA				

Exposure Control Notations

Switzerland

•Selenium (7782-49-2): **Developmental Risk Groups:** (Developmental Risk Group C) | **Skin:** (skin notation)

Germany DFG

•Selenium (7782-49-2): **Carcinogens:** (Category 3B (could be carcinogenic for man)) | **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to) | **Skin:** (skin notation)

Exposure Limits Supplemental

Switzerland

•Selenium (7782-49-2): **Biological Limit Values:** (150 µg/L Medium: serum Time: no restrictions Parameter: Selenium)

Spain

•Selenium (7782-49-2): **Under Review:** (0.2 mg/m3 VLA-ED)

ACGIH

•Selenium (7782-49-2): **TLV Basis - Critical Effects:** (eye and upper respiratory tract irritation)

8.2 Exposure controls

Engineering Measures/Controls

- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment).

Personal Protective Equipment

Pictograms**Respiratory**

- In case of insufficient ventilation, wear suitable respiratory equipment. Recommended: FP3.

Eye/Face

- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles. Recommended ; safety glasses with side-shields.

Hands

- Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Appropriate material: neoprene.

Skin/Body

- Wear suitable protective clothing as protection against splashing or contamination. Recommended: Acid-resistant protective clothing.

Thermal hazards

- The molten product can causes serious burns.

General Industrial Hygiene Considerations

- Handle in accordance with good industrial hygiene and safety practice. When using do not smoke or eat. Wash hands before eating, drinking, or smoking. Change work clothing daily before leaving work place. Wash contaminated clothing before reuse.

Environmental Exposure Controls

- Avoid release to the environment. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Powder, dust.
Color	Grey	Odor	Odorless
Organic/Inorganic	Inorganic		
General Properties			
Boiling Point	685 C(1265 F)	Melting Point	220.8 C(429.44 F) @ 1013.25hPa
Specific Gravity/Relative Density	4.809 Water=1	Water Solubility	Insoluble 0.0038 mg/L @ 21.2 C (70.16 F)
Explosive Properties	Classification criteria not met.	Oxidizing Properties:	Classification criteria not met.
Volatility			
Vapor Pressure	0.0013 hPa @ 20 C(68 F)		
Flammability			
Autoignition	> 400 C(> 752 F) Product is not self-igniting (EC A.16)	Flammability (solid, gas)	Classification criteria not met.
Environmental			
Bioconcentration Factor	944		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Not relevant.

10.4 Conditions to avoid

- Excess heat.

10.5 Incompatible materials

- Strong acids, strong reducing agents.

10.6 Hazardous decomposition products

- No hazardous decomposition products known.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Selenium (<1mm diameter) 7782-49-2								
Test Type	Dosage	Route	Species	Duration	Results	Test Class	Target Organs	Comments
Acute Toxicity	= 5000 mg/kg	Ingestion/Oral	Rat	NDA	LDLo	NDA	NDA	NDA
Acute Toxicity	= 5.67 mg/L	Inhalation	Rat	4 Hour(s)	LCLo	NDA	NDA	NDA
GHS Properties			Classification					
Acute toxicity			EU/CLP • Acute Toxicity - Inhalation 3; Acute Toxicity - Oral 3 OSHA HCS 2012 • Acute Toxicity - Inhalation 3; Acute Toxicity - Oral 3					
Aspiration Hazard			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Carcinogenicity			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Germ Cell Mutagenicity			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Skin corrosion/Irritation			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Skin sensitization			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
STOT-RE			EU/CLP • Specific Target Organ Toxicity Repeated Exposure 2 OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 2					
STOT-SE			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Toxicity for Reproduction			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Respiratory sensitization			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					
Serious eye damage/Irritation			EU/CLP • Data lacking OSHA HCS 2012 • Data lacking					

Potential Health Effects

Inhalation

Acute (Immediate)

- Exposure to dust may cause irritation. May cause coughing and difficulties in breathing. Vapours may cause headache, fatigue, dizziness and nausea.
- Repeated and prolonged exposure may affect the lungs and respiratory system.

Chronic (Delayed)

Skin

Acute (Immediate)

- No specific symptoms noted. The molten product can cause serious burns. Exposure to dust may cause mechanical irritation.

Chronic (Delayed)

- Under normal conditions of use, no health effects are expected. Repeated and prolonged exposure may cause redness and irritation.

Eye

Acute (Immediate)

- No specific symptoms noted. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes. Adverse symptoms may include the following : irritation, watering, redness.

Chronic (Delayed)

- Under normal conditions of use, no health effects are expected. Repeated or prolonged exposure to corrosive materials or fumes may cause conjunctivitis.

Ingestion

Acute (Immediate)

- Metallic taste. May cause stomach pain or vomiting.

Chronic (Delayed)

- Under normal conditions of use, no health effects are expected. Repeated or prolonged exposure to corrosive materials or fumes may cause gastrointestinal disturbances.

Section 12 - Ecological Information

12.1 Toxicity

Selenium (<1mm diameter)			7782-49-2		
Dosage	Species	Duration	Results	Exposure Conditions	Comments
> 100 mg/L	Fish: oncorhynchus mykiss	96 Hour (s)	LC50	semi-static; Hardness 1.1 mmol/l; Temperature 14.5-14.9°C; pH 8.1-8.6	NDA
>= 10 mg/L	Fish: oncorhynchus mykiss	28 Day(s)	NOEC	semi-static; Hardness 12-1.3 mmol/l; Temperature 14.5-15.3°C; pH 7.6-8.6	NDA
> 100 mg/L	Crustacea: Daphnia magna	48 Hour (s)	EC50	static; freshwater; Hardness 1.1mmol/l; Temperature 20.6-20.3°C; pH 7.76-8.24	nominal
>= 100 mg/L	Crustacea: Daphnia magna	21 Day(s)	NOEC	semi-static; Hardness 1.1 mmol/l; Temperature 19.9-21.1°C; pH 7.63-9.44	nominal
> 1.73 µg/L	Aquatic Plant(s): pseudokirchnerella subcapitata	72 Hour (s)	EC50	static; freshwater; Temperature 20.5°C; pH 8.27-7.88	µg Selenium/l (growth rate)

- The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.2 Persistence and degradability

- The products solely consists of inorganic compounds which are not biodegradable.

12.3 Bioaccumulative potential

- Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

12.4 Mobility in Soil

- Not considered mobile but soluble compounds may be produced by acidic conditions.

12.5 Results of PBT and vPvB assessment

- The PBT and vPvB criteria of Annex XIII to regulation (EC) 1907/2006 does not apply to

inorganic substances.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Recover, reclaim or recycle if practical. Refer to manufacturer/supplier for information on recovery/recycling.

Packaging waste

- Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse. Packaging that cannot be cleaned should be disposed of in agreement with regional waste disposal company.

13.2 Other Information

- When handling waste, consideration should be made to the safety precautions applied to handling of this product.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	NDA	NDA	NDA	NDA
TDG	NDA	NDA	NDA	NDA	NDA
IMO/IMDG	NDA	NDA	NDA	NDA	NDA
ADR/RID	NDA	NDA	NDA	NDA	NDA
IATA/ICAO	NDA	NDA	NDA	NDA	NDA

14.6 Special precautions for user

- No special precautions.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

14.8 Other information

- The product is not covered by international regulations on the transport of dangerous goods.

Section 15 - Regulatory Information

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

SARA Hazard Classifications

- No data available

State Right To Know				
Component	CAS	MA	NJ	PA
Selenium	7782-49-2	Yes	Yes	Yes

Inventory						
Component	CAS	Australia AICS	Canada DSL	China	EU EINECS	Korea KECL
Selenium	7782-49-2	Yes	Yes	Yes	Yes	Yes

Inventory (Con't.)		
Component	CAS	TSCA
Selenium	7782-49-2	Yes

Australia

Labor

Australia - List of Designated Hazardous Substances - Classification

• Selenium	7782-49-2	T R23/25, R33, R53
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Environment

Australia - National Pollutant Inventory (NPI) Substance List

• Selenium	7782-49-2	10 tonne/yr Threshold category 1 (Selenium and compounds)
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Canada

Labor

Canada - WHMIS - Classifications of Substances

• Selenium	7782-49-2	Uncontrolled product according to WHMIS classification criteria (including amorphous and crystalline)
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Canada - WHMIS - Ingredient Disclosure List

• Selenium	7782-49-2	0.1 %
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Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

• Selenium	7782-49-2	T; R23/25 R33 R53
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EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

• Selenium	7782-49-2	T R:23/25-33-53 S:(1/2)-20/21-28-45-61
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EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

• Selenium	7782-49-2	S:(1/2)-20/21-28-45-61
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Germany

Environment

Germany - TA Luft - Types and Classes

• Selenium	7782-49-2	inorganic dust Substance: 5.2.2, Class II
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Germany - TA Luft - Emission Limits for Inorganic Dusts

• Selenium	7782-49-2	2.5 g/h Mass flow (Class II); 0.5 mg/m3 Mass concentration (Class II)
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Germany - Water Classification (VwVwS) - Annex 3

• Selenium	7782-49-2	ID Number 2751, hazard class 2 - hazard to waters
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Malaysia

Labor

Malaysia - Occupational Safety & Health - Risk Phrases

• Selenium	7782-49-2	R-23/25, R-33
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Malaysia - Occupational Safety & Health - Safety Phrases

• Selenium	7782-49-2	S-20/21, S-28, S-44
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Malaysia - Occupational Safety & Health Conc. Cut-Offs for Harmful Category

• Selenium	7782-49-2	3.0 % (ingredient to be classified with R20 instead of R23 and/or R21 instead of R24 and/or R22 instead of R25)
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Malaysia - Occupational Safety & Health Conc. Cut-Offs for Toxic Category

• Selenium	7782-49-2	25.0 % (above this concentration ingredient to be classified with R23 and/or R24 and/or R25)
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Environment

Malaysia - Environmental Quality (Industrial Effluent) Regulations - Fifth and Eighth Schedules

• Selenium	7782-49-2	0.02 mg/L Standard A; 0.5 mg/L Standard B
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United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

• Selenium	7782-49-2	100 kg
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United States

Environment

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Selenium	7782-49-2	100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
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U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Selenium	7782-49-2	1.0 % de minimis concentration
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U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

• Selenium	7782-49-2	Included in waste stream: F039
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U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring

• Selenium	7782-49-2	(total)
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U.S. - RCRA (Resource Conservation & Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic

• Selenium 7782-49-2 1.0 mg/L regulatory level

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

• Selenium 7782-49-2 hazardous constituent - no waste number

U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents

• Selenium 7782-49-2 (total)

U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards

• Selenium 7782-49-2 0.82 mg/L (wastewater); 5.7 mg/L TCLP (nonwastewater)

U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring

• Selenium 7782-49-2 (total)

United States - Pennsylvania**Labor****U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List**

• Selenium 7782-49-2

15.2 Chemical Safety Assessment

- A chemical safety assessment has been carried out for this product.

Section 16 - Other Information

Revision Summary		
Date	MSDS No.	Changes
03/March/2014		<ul style="list-style-type: none"> • Section 1 changed. Addition of further uses. • Section 2 changed. Updated label elements. • Section 4 changed. Added further information. • Section 5 changed. Updated suitable extinguishing media. • Section 7 changed. Added further information. • Section 8 changed. Added recommendations to hand protection, respiratory protection, and skin/body protection. • Section 9 changed. Added bioconcentration factor. Edited melting point, water solubility and vapor pressure to be consistent with information submitted under Regulation (EC) 1907/2006. • Section 10 changed. Updated information to be consistent with information submitted under Regulation (EC) 1907/2006. • Section 13 changed. Updated information for waste packaging.

Classification method for mixtures

- Calculation method.

Training advice

- Chemical hazard awareness training, incorporating labelling, safety data sheets, personal protective equipment and good hygiene measures. Chemical incident response training. First aid for chemical exposure including use of eye wash and safety showers. Use of personal protective equipment, including selection, compatibility, maintenance, standards and fit.

Last Revision Date

- 18/February/2014

Preparation Date

- 04/February/2014

Other Information

- Information Sources : US-EPA Ecotox databases Hazardous Substance Data Bank

Disclaimer/Statement of Liability

(HSDB®) eChemPortal Handbook of chemistry and Physics 91st Edition, W.M. Haynes NIOSH RTECS ® databases (Registry of Toxic Effects of Chemical Substances) European Chemicals Agency (ECHA) databases.

- This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.
-

SAFETY DATA SHEET

Product Name: Silicon Carbide

Product Description: black silicon carbide

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION, AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the substance or preparation

Product Names: black silicon carbide

1.2 Use of the substance / preparation

1.3 Other means of identification

1.4 Company Name:	AGSCO Corporation	Emergency number: 847-520-4455
Address:	160 West Hintz Road	Information number: 847-520-4455
	Wheeling Illinois 60090	Date prepared: January 2015

2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008



health hazard

Carc. 1A H350 May cause cancer.

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



T; Toxic

R49: May cause cancer by inhalation.

- Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

- Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

- 2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the Globally Harmonized System within the United States (GHS).

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

- Hazard pictograms



GHS08

Signal word - DANGER

SAFETY DATA SHEET

· Hazard-determining components of labelling:

Quartz (SiO₂)

· Hazard statements

H350 May cause cancer.

· Precautionary statements

P281

Use personal protective equipment as required.

P202

Do not handle until all safety precautions have been read and understood.

P308+P313

If exposed or concerned: Get medical advice/attention.

P501

Dispose of contents/container in accordance with local/regional/national international regulations.

· Additional information:

Restricted to professional users.

· Hazard description:

· WHMIS-symbols:

D2A - Very toxic material causing other toxic effects

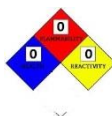


· NFPA ratings (scale 0 – 4)

Health =0

Flammability =0

Reactivity =0



· HMIS-ratings (scale 0 - 4)

Health =0

Flammability =0

Reactivity =0



* - Indicates a long term health hazard from repeated or prolonged exposures.

HMIS Long Term Health Hazard Substances

14808-60-7 Quartz (SiO₂)

· 2.3 Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3: COMPOSITION/INFORMATION ON INGREDIENTS

· 3.1 Substances

· CAS No. Description

409-21-2 silicon carbide

· Impurities and stabilizing additives:

CAS: 14808-60-7

EINECS: 238-878-4

Quartz (SiO₂)

T R49; Xn R48
Carc. 1A, H350

4: FIRST AID MEASURES

· 4.1 Description of first aid measures

· General information: No special measures required.

· After inhalation:

Supply fresh air; consult doctor in case of complaints.

Provide oxygen treatment if affected person has difficulty breathing.

SAFETY DATA SHEET

- **After skin contact:**

Brush off loose particles from skin.

Clean with water and soap.

If skin irritation continues, consult a doctor.

- **After eye contact:**

Immediately remove contact lenses if possible.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

- **4.2 Most important symptoms and effects, both acute and delayed**

Coughing

Gastric or intestinal disorders.

- **Hazards** Danger of impaired breathing.

- **4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5: FIREFIGHTING MEASURES

- **5.1 Extinguishing media**

- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.

- **For safety reasons unsuitable extinguishing agents:** None.

- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.

- **5.3 Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

6: ACCIDENTAL RELEASE MEASURES

- **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid formation of dust.

Ensure adequate ventilation.

For large spills, wear protective clothing.

For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

- **6.2 Environmental precautions:** No special measures required.

- **6.3 Methods and material for containment and cleaning up:**

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Dispose contaminated material as waste according to item 13.

- **6.4 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

- **7.1 Precautions for safe handling**

Prevent formation of dust.

Any unavoidable deposit of dust must be regularly removed.

Use only in well ventilated areas.

Avoid breathing dust.

- **Information about fire - and explosion protection:** No special measures required.

- **7.2 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.

SAFETY DATA SHEET

· **Further information about storage conditions:**

Store in cool, dry conditions in well sealed receptacles.

Store receptacle in a well ventilated area.

Protect from humidity and water.

This product is hygroscopic.

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:	
409-21-2 Silicon Carbide	
PEL (USA)	Long-term value: 15* 5** mg/m ³ fibrous dust: *total dust **respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	Long-term value: 10* 3** mg/m ³ fibrous dust:0,1 f/cc; nonfibrous:*inh.,**resp.
EL (Canada)	Long-term value: 10* 3** mg/m ³ *inhalable;**respirable
EV (Canada)	Long-term value: 10* 3** mg/m ³ , 0,1f/cc*** ppm nonfibrous: *inh.,**resp.; ***fibrous, resp.
14808-60-7 Quartz (SiO₂)	
PEL (USA)	see Quartz listing
REL (USA)	Long-term value: 0,05* mg/m ³ *respirable dust; See Pocket Guide App. A
TLV (USA)	Long-term value: 0,025* mg/m ³ *as respirable fraction
EL (Canada)	Long-term value: 0,025 mg/m ³ ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0,10* mg/m ³ *respirable fraction

· **DNELs** No further relevant information available.

· **PNECs** No further relevant information available.

· **Additional information:** The lists valid during the making were used as basis.

· 8.2 Exposure controls

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid close or long term contact with the skin.

Do not inhale dust / smoke / mist.

· **Respiratory protection:**

Suitable respiratory protective device recommended.

Use suitable respiratory protective device in case of insufficient ventilation.

For spills, respiratory protection may be advisable.

· **Protection of hands:**

Wear gloves for the protection against mechanical hazards according to NIOSH or EN 388.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· Eye protection:



Safety glasses

· Body protection:

Not required under normal conditions of use.

Protection may be required for spills.

· **Limitation and supervision of exposure into the environment** No special requirements.

· **Risk management measures** No special requirements.

9: PHYSICAL AND CHEMICAL PROPERTIES

· 9.1 Information on basic physical and chemical properties

General Information

Appearance:

Form:	Granulate
Color:	Black
· Odor:	Odorless
· Odor threshold:	Not determined.
· pH-value:	Neutral

· Change in condition

Melting point/Melting range: Not Determined.

Boiling point/Boiling range: Undetermined.

· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Product is not flammable.
· Auto/Self-ignition temperature:	Not determined.
· Decomposition temperature:	4712 °F / 2600 °C (Sublimation)
· Self-igniting:	Not determined.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not applicable.
· Density at 20 °C:	3.20 g/cm ³
· Relative density	Not determined.
· Vapor density	Not applicable.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water:	Insoluble.

· 9.2 Other information No further relevant information available

SAFETY DATA SHEET

10: STABILITY AND REACTIVITY

- **10.1 Reactivity**
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**
Reacts with strong acids.
Reacts with oxidizing agents.
Reacts with strong alkali.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** Carbon monoxide and carbon dioxide

SECTION 11: TOXICOLOGICAL INFORMATION

- **11.1 Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version: Carcinogenic if inhaled.
- **Repeated dose toxicity:** May cause damage to organs through prolonged or repeated exposure.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** Carc. 1A

12: ECOLOGICAL INFORMATION

- **12.1 Toxicity**
- **Aquatic toxicity:** Generally not hazardous for water
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** Does not accumulate in organisms.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Negative ecological effects are, according to the current state of knowledge, not expected.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

13: DISPOSAL CONSIDERATIONS

- **13.1 Waste treatment methods**
- **Recommendation**
Smaller quantities can be disposed of with household waste. Can be reused after reprocessing.
Contact waste processors for recycling information.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SAFETY DATA SHEET

14: TRANSPORT INFORMATION

- 14.1 UN-Number
- DOT, ADR, ADN, IMDG, IATA
- 14.2 UN proper shipping name
- DOT, ADR, ADN, IMDG, IATA
- 14.3 Transport hazard class(es)
- DOT, ADR, ADN, IMDG, IATA
- Class
- 14.4 Packing group
- DOT, ADR, IMDG, IATA
- 14.5 Environmental hazards:
- Marine pollutant:
- 14.6 Special precautions for user
- 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
- UN "Model Regulation":

Not Regulated

Not Regulated

Not Regulated

No

Not applicable.

Not applicable.

-

15: REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA

· Section 355 (extremely hazardous substances):	Substance is not listed.
· Section 313 (Specific toxic chemical listings):	Substance is not listed.
· TSCA (Toxic Substances Control Act):	Substance is listed.

- Proposition 65 (California):

· Chemicals known to cause cancer:		
14808-60-7	Quartz (SiO ₂)	
· Chemicals known to cause reproductive toxicity for females:	Substance is not listed.	
· Chemicals known to cause reproductive toxicity for males:	Substance is not listed.	
· Chemicals known to cause developmental toxicity:	Substance is not listed.	

- Carcinogenic Categories

· EPA (Environmental Protection Agency)		
Substance is not listed.		
· IARC (International Agency for Research on Cancer)		
14808-60-7	Quartz (SiO ₂)	1
· TLV (Threshold Limit Value established by ACGIH)		
409-21-2	Silicon Carbide	A2
14808-60-7	Quartz (SiO ₂)	A2
· NIOSH-Ca (National Institute for Occupational Safety and Health)		
14808-60-7	Quartz (SiO ₂)	

- Canada

· Canadian Domestic Substances List (DSL)	Substance is listed.
· Canadian Ingredient Disclosure list (limit 0.1%)	Substance is not listed.
· Canadian Ingredient Disclosure list (limit 1%)	Substance is not listed.

SAFETY DATA SHEET

Other regulations, limitations and prohibitive regulations

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

- **Substances of very high concern (SVHC) according to REACH, Article 57** Substance is not listed.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16: OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· 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)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

Carc. 1A: Carcinogenicity, Hazard Category 1A