Safety Data Sheet

Material: 291462 **Hyper pure Silicon ingots < 1 % Arsenic**

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Commercial product name: **Hyper pure Silicon ingots < 1 % Arsenic**

CAS No.: 7440-21-3

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

Use of substance / preparation:
Industrial.
Raw material for the production of silicon products

1.3 Details of the supplier of the safety data sheet

Manufacturer/distributor:	Siltronic AG	
Street/POB-No.:	Johannes-Hess-Straße 24	
State/postal code/city:	D 84489 Burghausen	
Telephone:	+49 8677 83-3930	
Telefax:	+49 8677 83-62171	
Contact point:	Siltronic Singapore Pte. Ltd.	
Street/POB-No.:	Tampines Industrial Avenue 5 10	
Postal code/city:	528820 Singapore	
Country:	Singapore	
Telephone:	+65 65 49-6000	
Telefax:	+65 65 49-6191	
Information about the Safety Data Sheet:	Telephone	+49 8677 83-4888
	Telefax	+49 8677 886-9722
	eMail	WLCP-MSDS@wacker.com

1.4 Emergency telephone number

Emergency Information (German):	**Plant fire brigade**	**+49 8677 83-2222**
Emergency Information (internat.):	**National Response Center**	**+49 621 60-43333**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 Label elements

No labeling according to GHS required.

2.3 Other hazards

Under certain conditions (see sec 10), the product can splitt off the gases arsine and hydrogen. Arsine shows strong toxic effects by inhalation and is also classified in terms of other physical hazards, health hazards and environmental hazards. Hydrogen is classified in terms of physical hazards.

SECTION 3: Composition/information on ingredients

3.1 Substances

3.1.1 Chemical characteristics

CAS No.: 7440-21-3

Silicon

3.1.2 Hazardous ingredients

Type	CAS No.	Substance	Content %
INHA	7440-42-8	Boron	
INHA	7723-14-0	Phosphorus (red)	
INHA	7440-36-0	Antimony	
INHA	7440-38-2	Arsenic	

Type: INHA: ingredient, VERU: impurity

A tiny amount of boron (CAS-No 7440-42-8), phosphorus (CAS-No 7723-14-0), antimony (CAS-No 7440-36-0), or arsenic (CAS-No 7440-38-2) is included as your requested resistivity.

3.2 Mixtures

not applicable

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57) in amounts above ≥ 0.1%.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:
No special measures required.

After contact with the eyes:
Rinse immediately with plenty of water for 10-15 minutes and seek medical advice.

After contact with the skin:
No special measures required.

After inhalation:
In case of dust formation: Provide fresh air.

After swallowing:
No special measures required. In cases of sickness seek medical advice (show label if possible).

4.2 Most important symptoms and effects, both acute and delayed

Any relevant information can be found in other parts of this section.

4.3 Indication of any immediate medical attention and special treatment needed

Further toxicology information in section 11 must be observed.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
Use extinguishing measures appropriate to the source of fire.

Extinguishing media which must not be used for safety reasons:
not applicable

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: silicon dioxide .

5.3 Advice for firefighters

Special protective equipment for fire fighting:
Use respiratory protection independent of recirculated air. Use tightly fitting chemical protection suit (see section 8).

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment (see section 8).

6.2 Environmental precautions

Observe local/state/federal regulations.

6.3 Methods and material for containment and cleaning up

Take up mechanically and dispose of according to local/state/federal regulations.

6.4 Reference to other sections

Relevant information in other sections has to be considered. This applies in particular for information given on personal protective equipment (section 8) and on disposal (section 13).

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions for safe handling:
Keep container closed when not in use. Keep away from incompatible substances in accordance with section 10.

Precautions against fire and explosion:
Observe the general rules for fire prevention. Product can separate hydrogen in contact with lyes.

7.2 Conditions for safe storage, including any incompatibilities

Conditions for storage rooms and vessels:
Observe local/state/federal regulations. Protect against moisture.

Advice for storage of incompatible materials:
Keep away from alkalis. Avoid contact with acids.

Further information for storage:
Protect against moisture.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

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8.2 Exposure controls

8.2.1 Exposure in the work place limited and controlled

General protection and hygiene measures:
Observe standard industrial hygiene practices for the handling of chemical substances. Avoid contact with eyes and skin. Do not eat, drink or smoke when handling. Wash hands at the end of work and before eating.

Personal protection equipment:

Respiratory protection

If inhalative exposure above the occupational exposure limit cannot be excluded, adequate respiratory protection equipment must be used. Suitable respiratory equipment: Respirator with a full face mask, according to acknowledged standards such as EN 136. Recommended Filter type: Combined filter type ABEK-P3 (certain inorganic, organic and acidic gases and vapors; ammonia/amines; particles), according to acknowledged standards such as EN 14387

Observe the equipment manufacturer's information and wear time limits for respirators.

Eye protection

In case of mechanical handling: tight fitting protective goggles .

Hand protection

Recommended glove types: Protective gloves, non-cuttable
Use of protective gloves is recommended when handling the material. For the choice of suitable gloves, workplace conditions have to be considered, like e.g. handling of other substances and materials.

8.2.2 Exposure to the environment limited and controlled

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property:	Value:	Method:
Appearance		
Physical state	solid	
Form	compact	
Colour	silver	
Odour		
Odour	odourless	
Odour limit		
Odour limit	no data available	
pH-Value		
pH-Value	not applicable	
Melting point/freezing point		
Melting point / melting range	1410 °C	
Initial boiling point and boiling range		
Boiling point / boiling range	2355 °C	
Flash point		
Flash point	not applicable	
Evaporation rate		
Evaporation rate	no data available	
Upper/lower flammability or explosive limits		
Lower explosion limit (LEL)	not applicable	
Upper explosion limit (UEL)	not applicable	
Vapour pressure		
Vapour pressure	not applicable	
Solubility(ies)		
Water solubility / miscibility	virtually insoluble	
Vapour density		
Relative gas/vapour density	No data known.	
Relative Density		
Relative Density	ca. 2,32 (Water / 4 °C = 1,00)	
Density	ca. 2,32 g/cm³	
Partition coefficient: n-octanol/water		
Partition coefficient: n-octanol/water	No data known.	
Auto-ignition temperature		
Ignition temperature	not applicable	
Viscosity		
Viscosity (dynamic)	not applicable	
Viscosity (kinematic)	not applicable	
Molecular mass		
Molecular mass	no data available	

9.2 Other information

No data available.

SECTION 10: Stability and reactivity

10.1 – 10.3 Reactivity; Chemical stability; Possibility of hazardous reactions

If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

Relevant information can possibly be found in other parts of this section.

10.4 Conditions to avoid

moisture

10.5 Incompatible materials

water , lyes , acids . Reaction causes the formation of: Arsine , hydrogen .

10.6 Hazardous decomposition products

If stored and handled properly: none known . Upon contact with the substances mentioned in 10. Arsine , hydrogen .

SECTION 11: Toxicological information

11.1 Information on toxicological effects

11.1.1 General information

Data derived for the product as a whole are of higher priority than data for single ingredients.

11.1.2 Acute toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

Route of exposure	Result/Effect	Species/Test system	Source
Oral	LD50: > 5000 mg/kg	Rat	literature (read-across substance)
dermal	LD50: > 5000 mg/kg	Rabbit	literature (read-across substance)

11.1.3 Skin corrosion/irritation

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

Result/Effect	Species/Test system	Source
not irritating	Rabbit	literature (read-across substance)

11.1.4 Serious eye damage / eye irritation

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

Result/Effect	Species/Test system	Source
not irritating	Rabbit	literature (read-across substance)

11.1.5 Respiratory or skin sensitization

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

During several years of handling this material, there were no indications of a skin-sensitizing potential.

11.1.6 Germ cell mutagenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

Based on known data a significant mutagenic potential may be excluded.

11.1.7 Carcinogenicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

No data known.

11.1.8 Reproductive toxicity

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances

silicon:

On the basis of the available data no reproductive hazards are expected. The evaluation is in analogy to a tested product.

11.1.9 Specific target organ toxicity (single exposure)

Assessment:

For this endpoint no toxicological test data is available for the whole product.

11.1.10 Specific target organ toxicity (repeated exposure)

Assessment:

For this endpoint no toxicological test data is available for the whole product.

Data on substances:

silicon:

No systemic toxicity.

Result/Effect	Species/Test system	Source
NOAEL: 4000 - 5000 mg/kg	Subchronic study rat oral	literature (read-across substance)

11.1.11 Aspiration hazard

Assessment:

Based on the physical-chemical properties of the product no aspiration hazard must be expected.

SECTION 12: Ecological information

12.1 Toxicity

Assessment:

For the product as a whole, no test data is available. Evaluation on basis of physical-chemical properties: No expected damaging effects to aquatic organisms.

Data on substances:

Data derived for the product as a whole are of higher priority than data for single ingredients.

silicon:

No expected damaging effects to aquatic organisms.

12.2 Persistence and degradability

Assessment:

For the product as a whole, no test data is available.

Data on substances:

silicon:

Separation by sedimentation.

12.3 Bioaccumulative potential

Assessment:

No data known.

12.4 Mobility in soil

Assessment:

For the product as a whole, no test data is available.

12.5 Results of PBT and vPvB assessment

No data available.

12.6 Other adverse effects

none known

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Material

Recommendation:
Observe local/state/federal regulations.

13.1.2 Uncleaned packaging

Recommendation:
Completely discharge containers (no tear drops, no powder rest, scraped carefully). Empty containers should be sent to an approved recycling facility.

SECTION 14: Transport information

14.1 – 14.4 UN number; UN proper shipping name; Transport hazard class(es); Packing group

Road ADR:
Valuation ..... : Not regulated for transport

Railway RID:
Valuation ..... : Not regulated for transport

Transport by sea IMDG-Code:
Valuation ..... : Not regulated for transport

Air transport ICAO-TI/IATA-DGR:
Valuation ..... : Not regulated for transport

14.5 Environmental hazards

Hazardous to the environment: no

14.6 Special precautions for user

Relevant information in other sections has to be considered.

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

Bulk transport in tankers is not intended.

SECTION 15: Regulatory information

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

National and local regulations must be observed.

For information on labelling please refer to section 2 of this document.

15.2 Details of international registration status

Relevant information about individual substance inventories, where available, is given below.

Japan ..... : **ENCS** (Handbook of Existing and New Chemical Substances):
This product is listed in, or complies with, the substance inventory.

Australia ..... : **AICS** (Australian Inventory of Chemical Substances):
This product is listed in, or complies with, the substance inventory.

China ..... : **IECSC** (Inventory of Existing Chemical Substances in China):
This product is listed in, or complies with, the substance inventory.

Canada ..... : **DSL** (Domestic Substance List):
This product is listed in, or complies with, the substance inventory.

Philippines ..... : **PICCS** (Philippine Inventory of Chemicals and Chemical Substances):
This product is listed in, or complies with, the substance inventory.

United States of America (USA) ..... : **TSCA** (Toxic Substance Control Act Chemical Substance Inventory):
All components of this product are listed as active or are in compliance with the substance inventory.

European Economic Area (EEA) ..... : **REACH** (Regulation (EC) No 1907/2006):
REACH registration number: 01-2119480401-47-0220
General note: the registration obligations for substances imported into the EEA or manufactured within the EEA by the supplier mentioned in section 1 are fulfilled by the said supplier. The registration obligations for substances imported into the EEA by customers or other downstream users must be fulfilled by the latter.

South Korea (Republic of Korea) ..... : **AREC** (Act on Registration and Evaluation of Chemicals; “K-REACH”):
General note: in case of registration obligations for substances or polymers imported into Korea or manufactured within Korea these are fulfilled by the supplier mentioned in section 1. The registration obligations for substances or polymers imported into Korea by customers or other downstream users must be fulfilled by the latter.

SECTION 16: Other information

16.1 Material

The details in this document are based on the state of our knowledge at the time of revision. They do not constitute an assurance of the described product properties in terms of statutory warranty requirements.

The providing of this document to a recipient does not relieve the recipient of his or her responsibility toward compliance with all laws and stipulations applicable to the product. This applies in particular to the further sale or distribution of the product or substances or items containing the product, in other jurisdictions and with regard to the protection of third-party intellectual property rights. If the described product is processed or mixed with other substances or materials, the details stated in this document cannot be conferred to the resultant new product unless this has been expressly mentioned. If the product is repackaged, the recipient is obligated to additionally provide the required safety-related information.

16.2 Further information:

Commas appearing in numerical data denote a decimal point. Vertical lines in the left-hand margin indicate changes compared with the previous version. This version supersedes all previous versions.

- End of Safety Data Sheet -