



# SAFETY DATA SHEET

Version 2.1  
30 September 2015

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

### 1.1. Product identifier

Product name: Silicon nitride ( $\text{Si}_3\text{N}_4$ ) with fibres > 10 vol%  
Product codes: F80 Silicon Nitride Fibres, F90 Silicon Nitride Fibres, P80 Silicon Nitride Particles  
CAS#: 12033-89-5\*

\* No CAS# exists for silicon nitride fibre; this is the CAS# for silicon nitride

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

Identified uses: Laboratory chemicals, manufacture of substances  
Advice against: Food additives, public distribution

### 1.3. Details of the supplier of the safety data sheet

Company: Nuenz Limited  
POBOX 2341  
Christchurch 8140  
NEW ZEALAND  
Telephone: NZ +64 3 3399300

### 1.4. Emergency telephone number

Emergency ph#: NZ +64 4 5762860

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Not a hazardous substance according to the Hazardous Substances and New Organisms Act, 1996 (NZ)

Not a hazardous substance according to Regulation (EC) No. 1272/2008.

Not a hazardous substance according to EC-directives 67/548/EEC or 1999/45/EC.

Classified under IARC "Group 2B: The agent (mixture) is possibly carcinogenic to humans":  
Refractory Fibres

### 2.2. Label elements

None

### 2.3. Other hazards

None

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## SECTION 3: Composition/information on ingredients

### 3.1. Substances

|                   |  |
|-------------------|--|
| Synonyms:         | Silicon nitride fibres, silicon nitride fibers, silicon nitride whiskers<br>silicon nitride nanowires, silicon nitride nanofibres, silicon nitride<br>nanofibers |
| Formula:          | N <sub>4</sub> Si <sub>3</sub>   |
| Molecular Weight: | 140.28 g/mol   |
| CAS#:             | 12033-89-5   |

#### Hazardous ingredients:

| Component       | Classification (CLP) | Concentration |
|-----------------|----------------------|---------------|
| Silicon nitride | not classified       | 80-100%       |

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## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General best practise for fine particulates:

**If inhaled**, move person to fresh air. If required, give artificial respiration. Seek immediate medical advice.

**In case of skin contact**, wash thoroughly with soapy water.

**In case of eye contact**, flush eyes with plenty of water. Seek medical advice.

**If swallowed**, rinse mouth with water. Consult a physician. Never give anything to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

See section 11

### 4.3. Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Not flammable – use appropriate firefighting measures for the surrounding fire.

### 5.2. Special hazards arising from the substance or mixture

Fire can liberate fine particulates of unknown toxicity.

### 5.3. Advice for firefighters

Wear full protective clothing and NIOSH approved self-contained breathing apparatus.

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## SECTION 6: Accidental release measure

### 6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing particulates, vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection, see section 8.

### 6.2. Environmental precautions

Do not let product enter drains

### 6.3. Methods and material for containment and cleaning up

Wipe up material with wet cloths and dispose of in marked bags.

### 6.4. Reference to other sections

See section 13 for disposal.

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Use personal protective equipment. Avoid dust formation. Avoid breathing particulates, vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection, see section 8.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in a well-sealed container. No incompatibilities.

### 7.3. Specific end use(s)

See section 1.2.

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Occupational exposure limit: 0.1 fibre/cc

-respirable fibres > 5µm, with an aspect ratio > 3 as determined by the membrane filter method at 400-450x magnification (4-mm objective), using phase-contrast illumination).

### 8.2. Exposure controls

#### Appropriate engineering controls

Use local exhaust. Handle in accordance with good hygiene practises.

#### Personal Protection

##### Eye protection

Safety glasses with side-shields conforming to local regulations such as EN166 or AS1337.1.2010.

##### Respiratory protection

NIOSH approved P2 type dust respirator.

##### Skin protection

Penetration resistant gloves compliant to local standards. Use proper glove removal technique (without touching glove outer surface). The type of protective clothing must be selected according to the concentration and volume being handled. Remove personal protective equipment before entering communal areas.

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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                                |                   |
|--------------------------------|-------------------|
| Appearance:                    | grey powder       |
| Odour:                         | none              |
| Odour threshold:               | n/a               |
| pH:                            | no data available |
| Melting point:/freezing point: | >1500 °C          |

|   |                       |
|---|-----------------------|
| Initial boiling point and boiling range:      | >1500 °C              |
| Flash point:                                  | >1500 °C              |
| Evaporation rate:                             | no data available     |
| Flammability (solid, gas):                    | not flammable         |
| Upper/lower flammability or explosive limits: | no data available     |
| Vapour pressure:                              | no data available     |
| Relative density:                             | 3.1 g/cm <sup>3</sup> |
| Water solubility:                             | insoluble             |
| Partial coefficient n-octanol/water:          | no data available     |
| Auto-ignition temperature:                    | no data available     |
| Decomposition temperature:                    | >1500 °C              |
| Viscosity:                                    | no data available     |
| Explosive properties:                         | no data available     |
| Oxidising properties:                         | no data available     |

## 9.2. Other information

No data available

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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

No data available

### 10.4. Conditions to avoid

No data available

### 10.5. Incompatible materials

No data available

### 10.6. Hazardous decomposition products

No data available

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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/irritation

No data available

#### Respiratory or skin sensitisation

Respiratory hazard, inhalation.

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

Suspected carcinogen – inhalation. This product contains a component that is not classifiable based on its IARC, NTP, or EPA classification.

IARC: Group 2B: possibly carcinogenic to humans (refractory fibres)  
In-vitro study shows comparable irritant/toxicity to other Group 2B compounds and less irritant/toxicity to Group 1 compounds.

**Reproductive toxicity**

No data available

**Specific target organ toxicity – single exposure**

No data available

**Specific target organ toxicity – repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional information**

Prolonged inhalation of refractory crystalline fibres may lead to pulmonary fibrosis in which scars are formed in the lung tissues. This causes the formation of scar tissue in the lungs and excessive fibrotic tissue, ultimately resulting in decreased lung function and perpetual shortness of breath.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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**SECTION 12: Ecological information**

**12.1. Toxicity**

No data available

**12.2. Persistence and degradability**

No data available

**12.3. Bioaccumulative potential**

No data available

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

No data available

**12.6. Other adverse effects**

No data available

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**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Use a specialist disposal company or return surplus product to the supplier.

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**SECTION 14: Transport information**

**14.1. UN number**

ADR-RID: -

IMDG: -

IATA-DGR: -

**14.2. UN proper shipping name**

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA-DGR: Not dangerous goods

**14.3. Transport hazard class(es)**

ADR-RID: -

IMDG: -

IATA-DGR: -

**14.4. Packing group**

ADR-RID: -

IMDG: -

IATA-DGR: -

**14.5. Environmental hazards**

ADR-RID: no

IMDG marine pollutant: no

IATA-DGR: no

**14.6. Special precautions for user**

No data available

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**SECTION 15: Regulatory information**

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

No data available

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**SECTION 16: Other information**

**Further Information**

This information provided in this SDS is the best information available at the date prepared and has been based on sources which we believe are reliable. However, the SDS is provided without express or implied warranty of the accuracy or correctness of the information. The SDS represents current best practise, minimum handling requirements. The conditions of handling, storage and disposal are beyond our control and possibly beyond our knowledge. For this and other reasons we do not assume responsibility and disclaim liability for loss, damage and expense arising in any way with the handling, storage, use or disposal of the product.