



**Wafer Safety Data Sheet**

**1. Product and Supplier Information**

Product Type :	DRAM process wafer		
Product Name :	DRAM process wafer		
Supplier Name :	Powerchip Technology Corporation		
Supplier Address :	NO. 12, LI-HSIN RD. 1, HSINCHU SCIENCE PARK, HISNCHU, TAIWAN, R.O.C.		
Contact name and phone number :	QA Department : Alex Wu	TEL: 886-3-5795000	EXT: 3068
	ESH Department : C.H. Wang	TEL : 886-3-5795000	EXT: 2374

**2. Product Component Identification Information**

**A. Product Property**

Silicon chip solid ( Total Weight = 130g )

**B. Product Component**

Component Name	CAS NO.	Composition ( w / w % )
Silicon (Si)	7440-21-3	99.64%
Aluminum (Al)	7429-90-5	0.146%
Tungsten (W)	7440-33-7	0.103%
Titanium (Ti)	7440-32-6	0.0637%
Cobalt (Co)	7440-48-4	0.0002%
Boron (B)	7440-42-8	0.0018%
Copper (Cu)	7440-50-8	0.001%
Phosphorus (P)	7723-14-0	0.0047%
Others	-	About 0.0396%

**3. Hazards Identification (Environmental-Restricted Substances Test Information)**

**Hazards:** There are dangers of a cut with an angular fragment and flying fragments if the product of a hazardous nature is broken. May be harmful if inhaled and ingested. May cause eye and skin Irritation.

**Physical and chemical hazards:** If fine powder of this product reacts on water, hydrogen gas is generated and, depending on conditions there is a danger of exploding with fire hazard.

**GHS Classification:** N/A

**4. First Aid Measures**

**Inhalation:** Remove victim to fresh air. Seek immediate medical attention.

**Ingestion:** No data available but one should obtain medical attention.

**Skin:** Remove contaminated clothing, flood skin with a large amount of water.

If irritation persists seek medical attention.

**Eye:** Immediately flush eyes, including under eyelids, with large amounts of water, for at least 15 minutes. Call a physician.



**5. Fire Fighting Measures**

**Extinguishing Media:**  
 Flammable Solid In Powdered Form.  
 If involved in fire, do not use water, CO2, or halogenated extinguishing agents. Use dry chemical extinguishing agents, dry sand or dry ground dolomite.

**Special Fire Fighting Procedures:**  
 Use normal procedures which include wearing NIOSH/MSHA approved self-contained breathing apparatus, flame and chemical resistant clothing; hats, boots and gloves. If without risk, remove material from the fire area. Cool container with water from maximum distance. Fumes from fire are hazardous. Isolate run off to prevent environmental pollution.

**6. Accidental Release Measures**

Wear appropriate respiratory and protective equipment. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute(HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

**7. Handling And Storage**

Store in a tightly closed container in a cool, dry, well-ventilated area. Wash thoroughly after handling.  
 Lab coat and apron, flame and chemical resistant coveralls, eyewash capable of sustained flushing, safety drench shower and hygienic facilities for washing. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide.

**8. Exposure Controls And Personal Protection**

**Respiratory Protection (Specify Type):** NIOSH approved dust respirator.

**Ventilation Requirements:** Use local exhaust to maintain concentration at or below the PEL, TLV. Mechanical exhaust is recommended.

**Protective Gloves:** Rubber.

**Eye/Face Protection:** Safety glasses.

**Other Protective Equipment:** Protective gear suitable to prevent contamination

**9. Physical and chemical property**

Material status	<input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	Shape	circular metal
	<input type="checkbox"/> Slurry <input type="checkbox"/> Powder	Smell	odorless
Color	brown	Boiling point	2355~2600°C



Auto ignition Temperature	N/A	Freezing/Melting Point	1410~1420°C
Evaporation Rate	N/A	Flash Point (Method Used)	N/A
% Volatiles by Volume	N/A	Flammable Limits:	Upper: N/A Lower: N/A
Vapor Pressure	1 mm at 1724°C	Vapor Density (air=1)	N/A
Specific Gravity (H2O=1) :	2.33 g/cm <sup>3</sup>	Solubility :	insoluble

### 10.Stability or Reactivity

Stability	Stable
Conditions to Avoid	None
Incompatibility (Material to Avoid)	Alkali carbonates, (Al+PbO), Ca, Cs <sub>2</sub> C <sub>2</sub> , Cl <sub>2</sub> , CoF <sub>2</sub> , F <sub>2</sub> , IF <sub>3</sub> , MnF <sub>3</sub> , Rb <sub>2</sub> C <sub>2</sub> , FNO, AgF, NaK alloy, water and steam.
Hazardous Decomposition Products	Hydrogen gas
Hazardous Polymerization	Will not occur

### 11.Toxicological Information

Carcinogenicity	<b>NTP: No / IARC: No / OSHA: No</b>
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### 12.Ecological information

Environment Impact	The waste water may impact environment which from firefighting or cooling.
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### 13.Disposal Considerations

Disposal rule	Must obey the law of waste disposal and treatment to reuse or disposal by landfill
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### 14.Transportation information

Not regulated as a hazardous material. Please handle with care because wafers are fragile.
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### 15.Regulatory information

Follow the relevant local laws and regulations.
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### 16.Other information

Reference	SDS of wafer
Date revised	December/21/2015( 3 years effectiveness)
Others	None