

Material Safety Data Sheet

SiGNa™ Sodium Silicide Powder (NaSi)



Section 1. Chemical product and company identification

Common Name: SiGNa™ Sodium Silicide Powder (NaSi)
CAS#: 12164-12-4
Material Uses: Provides more hydrogen gas through the reduction of water than either potassium or sodium alone. Ideal for the production of clean hydrogen gas on-demand from the reaction of water in the liquid or vapor form. Usable for hydrogenation chemistry, solvent/gas drying, and hydrogen supply for fuel cells.
Supplier/Manufacturer: SiGNa Chemistry, Inc., 530 E. 76th Street, Suite 9E, New York, NY 10021
Tel: 1-212-933-4101 Fax: 1-212-208-2605 Email: safety@signachem.com
In case of emergency: 1-888-779-0780

Section 2. Hazards identification

Physical State: Solid (Crystalline solid powder)
Emergency Overview: Water reactive!
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS
SPILLED POWDER WILL REACT SLOWLY WITH HUMID AIR
CONTACT WITH WATER RELEASES FLAMABLE HYDROGEN GAS
Do not get in eyes, on skin or clothing. Do not breathe dust. Keep away from heat, sparks, and flame. Will react with water or steam to produce heat and hydrogen gas. Keep container closed. Use only with adequate ventilation.
Dermal contact. Eye contact. Inhalation. Ingestion.

Routes of entry:

Potential acute health effects:

Eyes Corrosive to eyes.
Skin Corrosive to the skin.
Inhalation Corrosive to the respiratory system.
Ingestion May cause burns to mouth, throat and stomach.

Potential chronic health effects: CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Synthetic amorphous silica, precipitated].
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS : Not available.

Medical Conditions

Aggravated by Exposure:

Repeated exposure of the eyes to a low level of dust can produce eye irritation.
Repeated skin exposure can produce local skin destruction, or dermatitis.
Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.
Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

See toxicological information (section 11)

Section 3. Composition, Information on Ingredients

	CAS number	% by weight
United States		
Silicon powder	7440-21-3	35-65
Sodium metal	7440-23-5	35-65

This material is classified as hazardous under OSHA regulations
See Chapters 8, 11 and 14 for details.

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Section 4. First aid measures

Eye Contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Skin Contact:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion:	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Notes to physician:	No specific antidote. Medical staff must contact Poison Control Center.

Section 5. Fire fighting measures

Flammability of the product:	Can be ignited with a flame.
Auto-ignition temperature:	The lowest known value is 260°C (500°F).
Products of combustion:	Some metallic oxides.
Fire hazards in presence of various substances:	Flammable in presence of open flames, sparks and static discharge.
Fire fighting media and instructions:	Use dry chemical or CO ₂ . Do not use water or foam. Will react with water or steam to produce heat and hydrogen gas.
Special protective equipment for fire-fighters:	Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure.

Section 6. Accidental release measures

Personal Precautions:	Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Methods for Cleaning Up:	If emergency personnel are unavailable vacuum or carefully scoop up spilled materials and place in an appropriate container for disposal. Avoid creating dusty conditions and prevent wind dispersal.

Section 7. Handling and storage

Handling:	Do not get in eyes, on skin or on clothing. Keep container closed. Use only with adequate ventilation. Do not breathe dust. Keep away from heat, sparks and flame. Will react with water or steam to produce heat and hydrogen gas. Wash thoroughly after handling.
Storage:	Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use.

Section 8. Exposure Controls, Personal Protection

Engineering Controls:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection:	
Eyes	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.



Recommended: Safety glasses.

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Respiratory	Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	Recommended: Dust respirator. Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Skin/Body	>8 hour(s) (breakthrough time): Nitrile gloves. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Body: Recommended: Lab coat or overall. Feet: Recommended: Shoes



Personal protection in case of a large spill: Safety glasses, goggles or face shield. Impervious gloves.

Product name United States

Synthetic amorphous silica, precipitated

Exposure limits

ACGIH TLV (United States, 1/2004).
TWA: 10 mg/m³ 8 hour(s). Form: Gel
TWA: 10 mg/m³ 8 hour(s). Form: All forms.
OSHA PEL 1989 (United States, 3/1989).
TWA: 6 mg/m³ 8 hour(s). Form: All forms

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Physical State:	Solid (Crystalline powder)
Color:	Black / Grey
Specific Gravity:	1.7 (Water = 1)
Vapor Pressure:	0 kPa (0 mm Hg) (at 20°C)
Solubility:	Reacts with water to form hydrogen and sodium silicate

Section 10. Stability and reactivity

Stability and Reactivity:	The product is stable.
Conditions of Instability:	Very high temperatures or the presence of water and humid air.
Incompatibility with Various Substances:	Reactive or incompatible with liquid water. Reacts with water vapor. Reactive with oxidizing agents, acids. The product reacts with water to emit flammable but non-toxic gases.
Hazardous Polymerization:	Will not occur.

Section 11. Toxicological information

Acute Effects:	
Eyes	Corrosive to the eyes.
Skin	Corrosive to the skin.
Inhalation	Corrosive to the respiratory system.
Ingestion	May cause burns to mouth, throat and stomach.
Potential Chronic Health Effects:	CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Synthetic amorphous silica, precipitated]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available.

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Section 12. Ecological information

Products of degradation: Some sodium silicates

Section 13. Disposal considerations

Waste Disposal: The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

Classification

DOT/ IMDG/ IATA:	UN number	Proper shipping name	Class	Packing group
	UN2813	WATER-REACTIVE SOLID, N.O.S. (sodium silicide powder)	4.3	II
NAERG:	138			
Label:	UN/Other regulations	DOT		



Additional Information:

Section 15. Regulatory information

United States

HCS Classification

Water reactive material
Corrosive material

U.S. Federal Regulations

TSCA : All components listed.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Sodium-potassium alloy
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Sodium-potassium alloy: Fire hazard, reactive, Immediate (Acute) Health Hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found. Clean air act (CAA) 112 regulated toxic substances: No products were found.
Pennsylvania RTK: Sodium metal: (generic environmental hazard).
Massachusetts RTK: Sodium metal.
New Jersey: Sodium metal.

State Regulations

International Regulations:

International lists

Philippines (RA6969): Sodium metal.

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Section 16. Other information

Label Requirements: CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
SPILLAGE MAY CAUSE FIRE OR LIBERATE POISONOUS GAS.
CONTACT WITH WATER MAY CAUSE FLASH FIRE.

Hazardous Material Information System (USA):

Health	3
Fire hazard	3
Reactivity	2
Personal protection	C

National Fire Protection Association (USA):



References: ANSI Z400.1, MSDS Standard, 2001. -Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG.

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Notice to Reader:

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.