



MATERIAL SAFETY DATA SHEET
COMPLIES WITH 29 CFR 1910.1200.
OSHA HAZARD COMMUNICATION RULE

DATE OF LAST REVISION: 03-04-09

CHEMICAL IDENTITY

LABEL IDENTITY	SILICON NITRIDE
CHEMICAL NAME/SYNONYMS	TRISILICON TETANITRIDE
FORMULA	Si₃N₄ (mixture of alpha and beta forms)
CHEMICAL FAMILY	METAL NITRIDE
HAZARDOUS INGREDIENTS	SILICON NITRIDE
%: 100 CAS: 12033-89-5 TLV: 10mg/m³ OSHA/PEL: 10mg/m³ (as Si)	(as Si)
	0.1mg/m³
	(as SiO₂)

PHYSICAL AND CHEMICAL PROPERTIES

COLOR, FORM AND ODOR	Grayish-white amorphous powder. Slight ammonia possible.
BOILING POINT	ND
DENSITY (gm/cc)	3.44
VAPOR PRESSURE @ 20°	NA
% VOLATILE BY VOLUME (%)	NA
REACTION WITH WATER	Exothermic reaction possible
EVAPORATION RATE (H ₂ O=1)	NA
SOLUBILITY IN WATER	Insoluble
MELTING POINT	1900 (pressure) 2173 ° K-sublim

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	NA
AUTOIGNITION TEMPERATURE (° C)	NA
FLAMMABILITY	Non-flammable
EXTINGUISHING MEDIA	Use dry chemical, CO₂.
SPECIAL FIRE FIGHTING PROCEDURES	Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.
UNUSUAL FIRE & EXPLOSION HAZARDS	Material may emit toxic fumes if involved in a fire or on contact with acid or acidic fumes. NH₃ gas may be evolved on contact with water or moisture.



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HEALTH HAZARD INFORMATION

TOXICITY DATA	ipr-mus LDLO:	40mg/kg	ivn-rat LDLO:	15 mg/kg
	ipr-rat LDLO:	400mg/kg	ivn-rbt LDLO:	35mg/kg
	itr-rat LDLO:	120mg/kg		

HMIS RATING:

HEALTH: **2** FLAMMABILITY: **0** REACTIVITY: **2** PERSONAL PROTECTION: **F**

ROUTES OF ENTRY

INHALATION:	Yes
SKIN:	Yes
INGESTION:	Yes

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: **Respiratory Disorders**

EFFECTS OF OVEREXPOSURE (acute and chronic):

INHALATION: A respiratory irritant. Coughing, sneezing, difficulty breathing and pulmonary edema. May cause irritation of the mucous membranes of the nose and throat.

OTHER: The action of crystalline silica on the lungs results in the production of a diffuse,

modular fibrosis in which the parenchyma and the lymphatic system are involved. This fibrosis is, to a certain extent, progressive, and may continue to increase for several years after exposure is terminated. When the pulmonary reserve is sufficiently reduced, the worker complains of shortness of breath or exertion. This is the first and most common symptom in cases of uncomplicated silicosis. If severe, it may incapacitate the worker for heavy, or even light, physical exertion, and in extreme cases there may be shortness of breath even while at rest. The most common physical sign of silicosis is a limitation of expansion of the chest. There may be a dry cough, sometimes very troublesome. The characteristic radiographic appearance is one of diffuse, discrete modulation, scattered throughout both lung fields. Where the disease advances, the shortness of breath becomes worse, and the cough more productive and troublesome. There is no fever or other evidence of systemic reaction. Further progress of the disease results in marked fatigue, extreme dispense and cyanosis, loss of appetite, pleuritic pain and total incapacity to work. IF tuberculosis does not supervene, the condition may eventually cause death either from cardiac failure or from destruction of lung tissue, with resultant anorexia.

The details of the toxicity of nitrides as a group are unknown. However, many nitrides react with moisture to evolve NH3. This gas is an irritant to mucous membranes.



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CARCINOGENICITY: **None** NTP: **NO** IARC MONOGRAPHS: **NO** OSHA REGULATE: **NO**

EMERGENCY FIRST AID PROCEDURES:

INGESTION: **Administer 1-2 cups of water or milk and induce vomiting, seek medical attention.**

INHALATION: **Remove to fresh air, give oxygen if breathing is difficult. Seek medical attention.**

SKIN CONTACT: **Wash affected area with soap and water, seek medical attention.**

EYE CONTACT: **Flush eyes for at least 15 minutes with lukewarm water, seek medical.**

REACTIVITY DATA

STABILITY

Stable

INCOMPATIBILITY (MATERIALS TO AVOID)

Strong acids, strong bases and water

HAZARDOUS DECOMPOSITION PRODUCTS

SiO_x, NH₃

HAZARDOUS POLYMERIZATION

Will Not Occur

CONDITIONS TO AVOID

Heat, air, water/moisture and incompatible materials.

SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Wear self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred and insure proper ventilation is available. Vacuum up the spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.

WASTE DISPOSAL METHOD:

Dispose of in accordance with applicable federal, state and local regulations.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION

Wear NIOSH-approved dust-mist-fume cartridge respirator.

LOCAL EXHAUST

Maintain exposure below TLV

MECHANICAL (general)

Recommended

SPECIAL

Handle in a dry, inert, controlled atmosphere

OTHER

NA

PROTECTIVE GLOVES

Neoprene



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EYE PROTECTION
OTHER PROTECTIVE EQUIPMENT

Safety glasses
Wear protective clothing to prevent contamination of skin and clothes

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:

Store in tightly closed container, store away from heat and incompatible materials, wash hands and face thoroughly after handling and before meals.

TRANSPORTATION REQUIREMENTS

DOT CLASS: **Not Classified**
UN NUMBER: **NC**
IMCO CLASS: **NC**
OTHER: **SPC, corrosive**

PRECAUTIONARY LABELING

NONE

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NA= NOT APPLICABLE

ND= NO DATA FOUND