

# *Material Safety Data Sheet*

**Product: XM-103-T PETN Simulant**

Date of Preparation: 6/22/01

## Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** Simulant for Pentaerythritol tetranitrate (PETN)

**Chemical Formula:** for PETN  $C_5H_5N_5O_6$ ,

**CAS Number:**

**Other Designations:** Fused Silica with Pentaerythritol tetranitrate

**General Use:** To have the vapor signature of an explosive, but will not explode.

**Manufactured for:** XM division of Van Aken International, 9157 Rochester Court, Rancho Cucamonga, CA 91730,  
TEL (909) 980-2001, FAX (909) 980-2333 (hours 8:00am till 4:30pm of operation), emergency TEL (909) 374-0686.

### ☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

## Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
Silica, fused	60676-86	>96%
Pentaerythritol tetranitrate	78115	<4%

**Trace Impurities:** None

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
silica	80mg/m <sup>3</sup>	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.
PETN	1500mg/m <sup>3</sup> (SKIN)	none estab.	none estab.	none estab.	none estab.	none estab.	none estab.

**Toxicity Data:** Exposure Limits 0.1 mg/m<sup>3</sup> (resp), 1.5 mg/m<sup>3</sup> (skin), 500 mg/24H MLD(skn-rbt), 500 mg/ 1H MLD (eye-rbt)

## Section 3 - Physical and Chemical Properties

**Physical State:** granular solid

**Appearance and Odor:** light brown to white

**Odor Threshold:** None

**Density:** 2.2 gm/cc

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** 1.03

**pH:**

**Water Solubility:** 0.006

**Other Solubilities:**

**Melting Point:** 138°C for PETN

## Section 4 - Fire-Fighting Measures

**Flash Point:** none

**Burning Rate:**

**Autoignition Temperature:** none

**LEL:** N/A

**UEL:** N/A

**Flammability Classification:** 94 V-1

**Extinguishing Media:** Water Spray, carbon dioxide or dry chemical

**Unusual Fire or Explosion Hazards:** none

**Hazardous Combustion Products:** CO, CO<sub>2</sub>, NO

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

## Section 5 - Stability and Reactivity

**Stability:** Product is stable at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** none known

**Conditions to Avoid:** high temperature, and shock impact

**Hazardous Decomposition Products:** none

## Section 6 - Health Hazard Information

### Potential Health Effects

**Primary Entry Routes:** Inhalation, skin contact and absorption

**Target Organs:** eyes, skin, lungs, nervous system, bone marrow

#### Acute Effects

**Inhalation:** Respiratory tract irritation, convulsions, and unconsciousness

**Eye:** irritation

**Skin:** irritation

**Ingestion:** Headache, fall in blood pressure, methemoglobinemia

**Carcinogenicity:** IARC, NTP, and OSHA do not list product or chemical as a carcinogen.

**Medical Conditions Aggravated by Long-Term Exposure:** Vasodilation, methemoglobinemia, diseases of the cardiovascular system

**Chronic Effects:** contact dermatitis

### Emergency and First Aid Procedures

**Inhalation:** Remove affected person to well ventilated area.

**Eye Contact:** Wash with water.

**Skin Contact:** Wash with soap and water.

**Ingestion:** Induce vomiting.

*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**Note to Physicians:** PETN is vasodilator like other nitrate esters

**Special Precautions/Procedures:**

## Section 7 - Spill, Leak, and Disposal Procedures

**Spill /Leak Procedures:** Dispose of material as a non-explosive waste.

**Small Spills:** Same

**Large Spills:** Same

**Containment:** For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

**Cleanup:** Do not use acetone, use water as necessary.

**Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

**Disposal:** Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

**Disposal Regulatory Requirements:** As an inert material.

**Container Cleaning and Disposal:** Use water.

**Ecological Information:** None

#### EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)

RCRA Hazardous Waste Classification (40 CFR 261.): Not classified

CERCLA Hazardous Substance (40 CFR 302.4) unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112

CERCLA Reportable Quantity: none known

SARA 311/312 Codes: none known

SARA Toxic Chemical (40 CFR 372.65): Not listed

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed.

#### OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

OSHA Specifically Regulated Substance (29CFR 1910.109)

**State Regulations:** Same

## Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:** Handle as an inert material.

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 8.2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Administrative Controls:** Maintain in approved storage area.

6/22/01

PETN Simulant

MSDS

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses. Handle behind a barrier.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

**Section 9 - Special Precautions and Comments**

**Handling Precautions:** none

**Storage Requirements:** Store away from heat and open flame. Quantity limits of designated areas should be followed.

**DOT Transportation Data (49 CFR 172.101):**

**Shipping Name:** Simulant, not an explosive

**Shipping Symbols:** none

**Hazard Class:** not applicable

**ID No.:**

**Packing Group:**

**Label:**

**Special Provisions:**

**Packaging Authorizations**

a) **Exceptions:**

b) **Non-bulk Packaging:**

c) **Bulk Packaging:** N/A

**Quantity Limitations**

a) **Passenger, Aircraft, or Railcar:**

b) **Cargo Aircraft Only:**

**Vessel Stowage Requirements**

a) **Vessel Stowage:**

b) **Other:**

**Prepared By:** B. MacDonald

**Revision Notes:**

**Disclaimer:**