

### 1. IDENTIFICATION OF THE SUBSTANCE / AND OF THE COMPANY

**Product name** : HNS  
**Chemical name** : 2,2',4,4',6,6-Heksanitrostilben  
**Producer/supplier** : Chemring Nobel AS, High Energy Materials  
**Address** : Engeneveien 7, N-3475 Saetre, Norway.  
**Telephone -Telefax** : +47 3227 8600 - +47 3227 8610

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Name:	Formula:	CAS-No.:	Contents:	Warning symbols:	R-phrases:
HNS	C <sub>14</sub> N <sub>6</sub> O <sub>12</sub> H <sub>6</sub>	20062-22-0	60-100 %	Xn E	R-2, R-20/22

**Key to the symbols:** T+: Very toxic, T: Toxic, C: Corrosive, Xn: Harmful, Xi: Irritant, E: Explosive, O: Oxidising, F+: Extremely flammable, F: Highly flammable, R10: Flammable

### 3. HAZARDS IDENTIFICATION

Harmful by inhalation and ingestion

Risk of explosion by shock, friction, fire or other sources of ignition.



### 4. FIRST AID MEASURES

**General:**

Remove the patient from the source of exposure immediately. Normal first aid. Keep calm and warm in fresh air. If unconsciousness, loosen tight-fitting clothes and place in a stable side lying position. If breathing has stopped, give artificial respiration aid and if heart has stopped, give heart compression. SEEK MEDICAL ATTENTION.

**Ingestion:**

Conscious people: Induce vomiting (a finger in the throat or large quantities of milk). Keep head low to avoid content in stomach to reach lungs. Seek medical attention.

**Eyes:**

Flush immediately with water for at least 15 minutes. Obtain medical aid if irritation persists.

### 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media:**

Automatic sprinkler system. Use only remote controlled fire extinguishing system.

Do not use fire extinguishing powder.



# MATERIAL SAFETY DATA SHEET

High Energy Materials

Date of issue: 19. June 1998 DOC. No.: 149b. Page 2 (4)

HNS

## Fire in explosives:

Do not attempt to extinguish the fire, as an explosion may occur. Evacuate immediately.  
In case of fire and/or explosion, do not breath fumes.

## Preventive measures:

Store only in a permanent magazine.  
No naked lights.  
No smoking or use of open fire.

## 6. ACCIDENTAL RELEASE MEASURED

### Safety precautions:

Avoid impact, friction or other sources of ignition. Risk of explosion.  
Avoid skin contact and breathing of vapors. Use necessary personal protection.

### Environmental precaution:

Production as far as possible in protected systems. Containers must be well closed. Working place and methods must be planned in such a way that direct contact with HNS is avoided and potential wastage from leaking production kettles can be taken care of before contaminating the sewage system.

Waste shall be moistened and collected 100 % together with possible contaminated soil and put into separate container. Store waste in closed containers.

## 7. HANDLING AND STORAGE

### Handling:

Risk of explosion by shock, friction, fire or other sources of ignition. Handle with care.

### Storage:

Stored in tight closed containers and only in places approved for explosives.  
Smoking and use of open fire near explosives is prohibited.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>HTP values:</b>	Dust exposure: 10 mg/m <sup>3</sup> (1979 ACGIH).
<b>General:</b>	Avoid skin contact and breathing of dust.
<b>Breath protection:</b>	Use mask with dust filter.
<b>Hand protection:</b>	Tightly lined gloves of plastic, or plastic gloves with cotton inside glove.
<b>Skin protection:</b>	Use protective clothing to avoid spill on the skin.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Form:</b>	Powder	<b>Density / filling weight:</b>	1.7 / 0.2-0.7 g/ cm <sup>3</sup>
<b>Colour:</b>	Yellow-brown	<b>Decomposition temp.:</b>	316 °C
<b>Odour:</b>	None	<b>Solubility:</b>	Not soluble in water or alcohol.
<b>Melting point:</b>	316 °C (decomposes)		Soluble in DMF

### 10. STABILITY AND REACTIVITY

**Stability:**

Impact, friction, electrostatic spark, open fire or other sources of ignition can lead to explosion. Burning of large amount can lead to explosion. Heating under confinement can lead to explosion.

**Reactive compounds:**

Strongly oxidizing compounds, as nitric acid.

**Hazardous decomposition products:**

Nitrous fumes.

### 11. TOXICOLOGICAL INFORMATION

Skin irritation : None  
Eye irritation (rabbit) : Mild and passing irritation  
Oral rat (single oral dose toxicity), LD<sub>50</sub> : >4000 mg/kg  
Rabbit (single dose percutaneous toxicity) : >2000 mg/kg

Positive bio-activity by HNS is registered in Ames test (weak mutagen). HNS can thus be regarded having a possible health risk.

Pregnant women shall not work with HNS.

### 12. ECOLOGICAL INFORMATION

No data available, but possibly the same biodegradation effect as with TNT (BOD 0.5 g/g, COD 1.2 g/g, BOD/COD 0.4).

No toxicity data.

### 13. DISPOSAL CONSIDERATIONS

Explosion risk. Small quantities of HNS may be dissolved in dimethylformamide or acetone and burned. Solid HNS together with organic material can be burned in an open flame on safe distance by destruction experts.

National regulations for handling explosives must be followed.

### 14. TRANSPORT INFORMATION

**General:**

The packing (cardboard box/drum) is signed with explosion label tradename, UN-number, lot and charge number, production month/year, net- and gross weight and transport class. The cardboard box/drum is type proved according to UN Transport of Dangerous Goods.

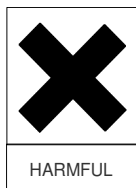
**Transport and danger class:**

UN No. : 0392

Sea/land (IMDG/ADR/RID) : Class 1.1 D

### 15. REGULATORY INFORMATION

**Classification:**



**Letter code on packing:**

Xn - HARMFUL

E - EXPLOSIVE

**Composition:**

HNS (Hexanitrostilbene) 60-100 %

**Risk phrases:**

R-2: Risk of explosion by shock, friction, fire or other sources of ignition.

R-20/22: Harmful by inhalation and if swallowed.

**Safety phrases:**

S-22: Do not breathe dust.

S-35: This material and its container must be disposed of in a safe way.

**National regulations:**

Based on Norwegian regulations.

### 16. OTHER INFORMATION

**Prepared by:** Richard Gjersøe

**Superseding safety data sheet dated:**

**References:**

HNS Material Safety Data Sheet, Chemtronics Inc., USA.

"Proceedings of the Symposium of the chemistry of HNS, 26-28/3-1979": Propellant, Explosives and Rocket Motor Establishment, Procurement Executive, Ministry of Defence, UK.

**Suppliers notes:**

**Users notes:**