

# Accurate Energetic Systems, LLC

## MATERIAL SAFETY DATA SHEET

### BOOSTER, NON-ELECTRIC with HNS

MSDS NO. 1002.013

**HAZARD RATING:**      **Health - 2**      **Flammability - 3**      **Reactivity - 4**      **Special - High Explosive Component**

#### SECTION I - MANUFACTURE'S INFORMATION

**Manufacture/Distributor Name:** Accurate Energetic Systems, LLC  
**Address:** 5891 Highway 230 West, McEwen, TN 37101  
**Telephone Number:** (931) 729-4207  
**Emergency Telephone Number:** 1-800-255-3924  
**Date Prepared:** 04/20/01      **Supersedes:** 12/02/99

#### SECTION II - CHEMICAL COMPOSITION

Component	CAS #	%	OSHA PEL	ACGIH TLV	Other Limits
HNS (hexanitrostilbene)	109-27-3	As required	n/a	n/a	5 mg/m <sup>3</sup> (resp. nuisance dust)
Aluminum (metallic casing)	7429-90-5		15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (resp. fract) - metal dust - metal dust	10 mg/m <sup>3</sup> - metal dust	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (resp. fract) - metal dust; NIOSH

NOTE: Hazard Class 1, Division 1; SCG "D"

NOTE: Materials in this product are subject to the reporting requirements of SARA, Title III, Section 313 as follows:  
aluminum (fume or dust)

#### SECTION III - PHYSICAL AND CHEMICAL DATA (NOTE: Data is for HNS only except for "Appearance and Odor")

**Boiling Point:** n/a  
**Specific Gravity:** 1.74  
**Melting Point:** 315<sup>0</sup>C minimum  
**Vapor Pressure (mm Hg):** 2.9 X 10<sup>-8</sup> @ 110<sup>0</sup>C  
**Vapor Density (Air = 1):** n/a  
**Evaporation Rate (Butyl Acetate = 1):** n/a  
**Solubility In Water:** Almost insoluble  
**Appearance And Odor:** Primarily cylindrical-shaped, open-ended aluminum cup with the explosive charge buff-yellow in color. No distinguishing odor

## SECTION IV - FIRE AND EXPLOSION HAZARDS

**Flash Point:** n/a

**Flammable Limits:** LEL n/a UEL n/a

**Extinguishing Media:** Water sprinkler or deluge system which is automatically activated.

**Special Fire Fighting Procedures:**

Do not attempt to fight fires involving high explosives. Isolate area and immediately evacuate all personnel from the area to a safe distance using as much protective cover as possible.

**Unusual Fire And Explosion Hazards:**

HIGH EXPLOSIVE!! The explosive is under confinement and may be caused to detonate by burning material surrounding the non-electric boosters. Metallic fragments are a secondary hazard.

## SECTION V - REACTIVITY/COMPATIBILITY DATA

**Stability:**

Stable under normal conditions. High heat, shock, friction, impact, electrical discharge when supplied in sufficient energy can cause initiation of the non-electric boosters.

**Incompatibility (materials to avoid):**

Avoid alkalis and acids.

**Hazardous Decomposition Products:**

During decomposition, emits carbon dioxide, carbon monoxide, and oxides of nitrogen.

**Hazardous Polymerization:**

Will not occur

## SECTION VI - HEALTH HAZARD DATA

NOTE: Under normal conditions of handling, personnel should not come in contact with the explosive material in the non-electric booster. The metallic casing should not pose a serious health threat except possibly through post-detonation fumes.

**Routes Of Entry:**

<b>Eye?</b>	Unlikely
<b>Inhalation?</b>	Yes (post-detonation fumes)
<b>Skin?</b>	Unlikely
<b>Ingestion?</b>	Unlikely

**Effects Of Over-Exposure:**

<b>Acute -</b>	Slight to serious effects
<b>Chronic -</b>	Not fully known

**Signs And Symptoms Of Exposure:**

HNS can cause headaches, dizziness, sleeplessness, allergic skin reaction, eye irritation, and irritation of the mucous membranes of the respiratory organs. Excessive exposure may cause blood damage (anemia and methemoglobinemia) and liver damage. HNS has showed positive activity in the AMES test, a mutagen effect can not be excluded.

**Medical Conditions Generally Aggravated By Exposure:**

Personnel should be in generally good health

## SECTION VI - HEALTH HAZARD DATA (cont.)

### Emergency First Aid Procedures:

- Eye -** Flush with water for 15 minutes. Remove contact lenses prior to flushing, if applicable. Get medical attention.
- Inhalation -** Remove to fresh air. Give oxygen if necessary. Get medical attention.
- Skin -** Wash with soap and warm water. Get medical attention for rash or irritation.
- Ingestion -** If conscious, drink large quantities of water and induce vomiting immediately. Contact a physician or Poison Control Center immediately.
- Other -** Accidental detonation may result in severe personal injury. Provide first aid as applicable and obtain medical attention immediately.

### Carcinogenicity:

- NTP?** Not listed
- IARC Monographs?** Not listed
- OSHA Regulated?** Not listed

## SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

### Steps To Follow If Material Is Spilled Or Released:

If explosive material is spilled from metallic casing, remove all sources of ignition. Avoid any and all situations which could initiate the material, such as friction, impact, heat, sparks, or electrostatic discharge. Wet down material with water. Sweep up spill with a soft bristle brush and a non-sparking pan or shovel. Place material in a properly labeled storage container and store in an approved storage magazine for further disposition.

### Waste Disposal Method:

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

### Precautions To Be Taken In Handling And Storage:

Handle with care. Store only in authorized High Explosives magazine with compatible material and away from all sources of ignition and flammable materials. Do not store with detonators, initiating (Primary) explosives, flammable liquids or solvents.

### Other Precautions:

The non-electric boosters are generally considered UNO Class 1.1 hazardous material and the storage compatibility group (SCG) is "D".

## SECTION VIII - PERSONAL PROTECTION INFORMATION

### Respirator Protection (Specify Type):

Under normal handling, none required.

### Ventilation:

- Local Exhaust -** Under normal handling, none required.
- Mechanical (General) -** Under normal handling, none required.
- Special -** n/a
- Other -** n/a

### Protective Gloves:

Under normal handling, none required.

### Eye Protection:

Safety glasses or goggles that meet or exceed ANSI Z87.1 (latest revision)

### Other Protective Clothing Or Equipment:

Cotton clothing recommended. Hearing protection should be worn when detonating non-electric boosters.

### Work/Hygienic Practices:

Wash hands thoroughly after handling.

## **SECTION IX - SPECIAL PRECAUTIONS**

### **Precautions To Be Taken:**

CAUTION: High explosives are extremely dangerous. When detonated, high velocity metallic fragments are generated. Non-electric boosters must be handled only by qualified personnel who are experienced and highly trained in the use of and familiar with the hazards inherent in explosives. When non-electric boosters are detonated or destructively tested, all personnel must be protected from the effects of blast overpressure and fragments. Allow the post detonation fumes and dust to clear before entering the area. Follow all safety regulations and precautions when handling, storing, or processing explosive material.

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