



U.S. Department  
of Transportation

Pipeline and Hazardous Materials  
Safety Administration

1200 New Jersey Ave., SE  
Washington, DC 20590

OCT 29 2008

Ms. Ernest Conwell  
NSROC Program Office  
P.O. Box 99  
Building M16 Room 107  
NASA Wallops Flight Facility  
Wallops Island, Virginia 23337

Ref. No. 08-0234

Dear Mr. Conwell:

This responds to your September, 23 2008 letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask if a rocket motor containing fuel comprised of 38.6% (.05 ppm) Nitroglycerin meets the definition of a "hazardous substance" under the HMR. The referenced concentration in the rocket motor equals approximately 700 pounds of nitroglycerin.

The answer is yes. A Hazardous substance is defined in § 171.8 as a material, including its mixtures and solutions, that is listed in Appendix A to § 172.101, and is in a quantity, in one package, that equals or exceeds the reportable quantity (RQ) for the material listed in Appendix A. Nitroglycerin is listed in Appendix A to § 172.101 with a reportable quantity of 10 pounds. The concentration of Nitroglycerin in the rocket motor exceeds the reportable quantity in one package (700 pounds of Nitroglycerin in the rocket motor). Therefore, the rocket motor meets the definition of a hazardous substance.

I hope this information is helpful. Please contact us if you require additional assistance.

Sincerely,

Susan Gorsky  
Acting Chief, Standards Development  
Office of Hazardous Materials Standards

Eichenlaub  
§ 172-101  
§ 171.8  
Definition of Reportable  
Quantity  
08-0234

Drakeford, Carolyn <PHMSA>

**From:** INFOCNTR <PHMSA>  
**Sent:** Tuesday, September 23, 2008 8:31 AM  
**To:** Drakeford, Carolyn <PHMSA>  
**Subject:** FW: Request for Clarification on Hazardous Substance  
**Attachments:** UN0280 MSDS.pdf

**From:** Cornwell Ernest [mailto:Cornwell\_Ernest@nsroc.net]  
**Sent:** Monday, September 22, 2008 4:00 PM  
**To:** INFOCNTR <PHMSA>  
**Subject:** Request for Clarification on Hazardous Substance

Ernest R. Cornwell, Magazine Manager  
On behalf of  
National Aeronautics and Space Administration  
NASA/GSFC/WFF Building M-16 Room 107  
Wallops Flight Facility  
Wallops Island, Virginia 23337

Phone: 757-824-2548  
Fax: 757-824-2551  
Email: ernest.r.cornwell@nasa.gov

Reference: 49CFR 171.8

Enclosure: MSDS for UN0280 Rocket Motor, 1.1C, PGII

This is a request for written clarification concerning the definition of Hazardous

In definitions and abbreviations, Sec. 171.8:

- Hazardous substance for the purposes of this subchapter, means a material, inclu
- (1) Is listed in the appendix A to Sec. 172.101 of this subchapter;
  - (2) Is in a quantity, in one package, which equals or exceeds the reportable qua
  - (3) When in a mixture or solution--
- (ii) For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration coi

RQ pounds (kilograms)	Concentration by weight	
	Percent	PPM
5000 (2270)	10	100,000
1000 (454)	2	20,000
100 (45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.454)	0.002	20

Table 1 to Appendix A --Hazardous Substances Other Than Radionuclides  
Nitroglycerine 10 Pounds (4.54 Kilograms)

When transporting in commerce, including highway and vessel, the example item is offered. This mixture is contained within an article, proper shipping name:

UN0280 Rocket Motors, 1.1C, PGII. Of note in the MSDS, the concentration of Nitroglycerine is 38.6% (.05 PPM). The referenced concentration equals approximately 700 Pounds.

Does this product, in fact, fall within the definition of Reportable Quantity?

Submitted;

Ernest R. Cornwell  
NSROC Program Office P.O. Box 99  
Building M16 Room 107  
NASA Wallops Flight Facility  
Wallops Island, Virginia 23337

MATERIAL SAFETY DATA SHEET

151

HEXACULS

Page 1 of 3

CHEMICAL NAME N/A

REGULAR TELEPHONE NO. (703) 639-7294

SYNONYMS: N/A

EMERGENCY TELEPHONE NO.

FORMULA: N/A

CHEMICAL FAMILY Double-Base Propellant

TRADE NAME AND SYNONYMS: *Propellant N.O.S.I.M. AA-2 Standard*

I. PHYSICAL DATA

BOILING POINT, 760mm. Hg N/A

FREEZING POINT N/A

SPECIFIC GRAVITY (H<sub>2</sub>O = 1) 1.4170

VAPOR PRESSURE @ °C Negligible

VAPOR DENSITY (AIR = 1) N/A

SOLUBILITY IN WATER, % BY WT @ °C Negligible

PERCENT VOLATILES

EVAPORATION RATE

BY VOLUME N/A

(BUTYL ACRYLATE = 1) less than 1

APPEARANCE AND ODOR Flat sheet, brownish in color

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (LIMITS)
Nitrocellulose (flammable solid)	51.0	Not established
Nitroglycerin (skin)	38.6	0.05 PPM
2-Nitrodiphenylamine	2.0	Not established
Di-n-Propyl Adipate	1.6	Not established
Tricetin	2.7	Not established
Lead - Copper - Resorcylate - Salicylate	4.0	Not established
Candelilla Wax	0.1	Not established

Note: OSHA PEL = 0.20 PPM (ceiling)

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD)	N/A	AUTOIGNITION TEMPERATURE	396.5oF
FLAMMABLE LIMITS IN AIR, % BY VOLUME	LOWER	N/A	UPPER N/A
EXTINGUISHING MEDIA	Self-oxidizing; deluge with water. May not be able to extinguish before all material has been consumed unless large quantities of water are used in very short time period.		
SPECIAL FIRE FIGHTING PROCEDURES	Evacuate the area.		
UNUSUAL FIRE AND EXPLOSION HAZARDS	Easily ignited, highly combustible; protect from fire, sparks and extreme heat.		

HEXACULS INCORPORATED  
RADFORD ARMY AMMUNITION PLANT  
RADFORD, VIRGINIA



MATERIAL SAFETY DATA SHEET

MSDS:  
DATE:  
PAGE: 3 of 3

TRADE NAME:                    PROPELLANT NOSIH-AA-2 STANDARD

IX SPECIAL PRECAUTIONS  
PRECAUTIONARY LABELING:

Labeled and packaged in accordance with the Hazardous Materials Regulations of the Department of Transportation for Class B Explosives.

**WARNING: FLAMMABLE Solid**  
Keep away from heat, sparks, and open flame.  
Keep containers closed.  
Use with adequate ventilation

**FIRST AID:**

**EYES:**                        In case of contact, immediately flush with plenty of low pressure water for at least 15 minutes. Remove any contact lenses to assure thorough flushing. Call a physician.

**SKIN:**                        Wash with soap and running water.

**INHALATION:**                Remove to fresh air. Treat any irritation symptomatically. Call a physician.

**OTHER HANDLING AND STORAGE CONDITIONS:**

Storage also must conform to local, state and Federal Regulations including OSHA - 29CFR 1910.109 and BATF, 27CFR55, Subpart K.