



## SAFETY DATA SHEET

### Butyl-NENA

#### SECTION 1: Identification of the substance/mixture and of the company

Date issued June 13, 2012

##### 1.1. Product identifier

Product name Butyl-NENA  
Chemical name 2-(butylNitroamino)ethylnitrate  
CAS no. 82486-82-6  
EC no. 279-976-7  
Formula C6H13N3O5

##### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation Production of weapons and ammunition.  
Relevant identified uses PC11 Explosives

##### 1.3. Details of the supplier of the safety data sheet

###### Manufacturer/Supplier

Name Mil-Spec Industries Corp.  
Address 42 Herb Hill Road  
Glen Cove, NY 11542

Telephone Number (516) 625-5787  
Emergency Number 1-800-255-3924 (U.S./Canada), +1-813-248-0585 (International)

#### SECTION 2: Hazards identification

##### 2.1. Classification of the substance or mixture

Classification according to E; R2  
67/548/EEC or 1999/45/EC  
Classification according to Expl. 1.3; H203;  
Regulation (EC) No  
1272/2008 [CLP/GHS]  
Substance / mixture The product is an explosive and has a fire, blast or projection hazard.  
hazardous properties

##### 2.2. Label elements

###### Hazard Pictograms (CLP)



Composition on the label 2-(butylNitroamino)ethylnitrate (Butyl-NENA): > 99 %  
Signal word Danger  
Hazard statements H203 Explosive; fire, blast or projection hazard.

Precautionary statements	P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P250 Do not subject to grinding/shock/friction. P370 + P380 In case of fire: Evacuate area. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P373 DO NOT fight fire when fire reaches explosives. P501 Dispose of contents/container to approved depot.
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### 2.3. Other hazards

PBT / vPvB	Not PBT/vPvB.
Other hazards	See sections 5, 11 and 12 for complementary information.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Component name	Identification	Classification	Contents
2-(butyl-nitroamino)ethyl-nitrate (Butyl-NENA)	CAS no.: 82486-82-6 EC no.: 279-976-7	E; R2 Expl. 1.3; H203;	> 99 %
N-Methyl-4-nitroaniline	CAS no.: 100-15-2 EC no.: 202-823-2	T; R23/24/25 R33 N; R51/53 Aquatic Chronic 2; H411; STOT RE2; H373; Acute tox. 3; H331; Acute tox. 3; H311; Acute tox. 3; H301;	< 1 %
Description of the mixture	Chemical 2 is stabilizer.		
Component comments	See section 16 for explanation of H- and R-phrases listed above.		

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

General	In case of unconsciousness, loosen tight-fitting clothing. If respiratory problems, provide artificial respiration or oxygen. Seek medical advice.
Inhalation	Fresh air and rest.
Skin contact	Remove contaminated clothing. Wash the skin immediately with soap and water. Contact physician if symptoms appears.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Contact physician if discomfort continues.
Ingestion	Drink a few glasses of water or milk. Only induce vomiting after consulting medical personnel. If vomiting occurs, the head should be kept low so that stomach vomit does not enter the lungs. Seek medical attention. Unconscious people shall immediately be brought to hospital.

### 4.2. Most important symptoms and effects, both acute and delayed

Information for health personnel	Symptomatic treatment.
Delayed symptoms and effects	Butyl-NENA is vasodilatory (blood vessel-expanding) and can cause headaches similar to nitroglycerin.

### 4.3. Indication of any immediate medical attention and special treatment needed

Other Information	No specific treatment required, see section 4.1.
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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	Extinguish surrounding fires with suitable extinguisher.
Improper extinguishing media	Do not fight fires involving explosives, risk of explosion! Fire in explosives cannot be extinguished with any fire equipment.

### 5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	Explosive by shock, friction, fire or other sources of ignition. By explosion or fire, toxic gases such as nitrogen oxides (NO, NO <sub>2</sub> and N <sub>2</sub> O <sub>4</sub> ) and carbon oxides (CO, CO <sub>2</sub> ) may be formed.
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### 5.3. Advice for firefighters

Personal protective equipment	Use fresh air equipment when the product is involved in fire. In case of evacuation, an approved protection mask should be used. See also section 8.
Other Information	Evacuate all personnel to a predetermined safe location. Notify authorities in accordance with emergency response procedures. Containers close to fire should be removed immediately or cooled with water.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	Remove all sources of ignition. Provide adequate ventilation.
Personal precautions	Use protective equipment as referred to in section 8.

### 6.2. Environmental precautions

Environmental precautions	Do not allow to enter into sewer, water system or soil.
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### 6.3. Methods and material for containment and cleaning up

Methods for cleaning	Remove spillage with absorbent materials. Collect in a suitable container and dispose as hazardous waste according to section 13.
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### 6.4. Reference to other sections

Other instructions	See section 7 and 8.
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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Handling	Only to be handled by authorized personnel. The explosives must be under supervision and unavailable for persons not concerned. Keep away from sources of ignition - No smoking. Protect against heating. Protect against physical damage and/or friction.
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### 7.2. Conditions for safe storage, including any incompatibilities

Storage	Store dry in a well-ventilated place. Storage room must be locked and secured from fire. Store separated from: igniters.
Special risks and properties	Explosive by shock and heating.
Other Information	Comply with national regulation regarding handling of explosives.

### 7.3. Specific end use(s)

Specific use(s)	See section 1.2.
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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Other Information about threshold limit values	Contains no substances with occupational exposure limit values.
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### 8.2. Exposure controls

Occupational exposure controls	Do not eat, drink or smoke during work. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
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### Precautionary measures to prevent exposure

Technical measures to prevent exposure	Provide adequate ventilation.
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### Respiratory protection

Respiratory protection	Normally not required. If there is insufficient ventilation, use a respirator with type A-filter. Wear air-supplied mask in confined areas.
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### Hand protection

Hand protection	Use gloves from resistant material, e.g.: Butyl rubber.
Breakthrough time	Penetration time is not known. The recommended material of gloves is recommended after a study of the single components in the product.

### Eye / face protection

Eye protection	Wear approved safety goggles.
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### Skin protection

Skin protection (other than of the hands)	Wear appropriate protective clothing to protect against skin contact.
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### Other Information

Other Information	Eye wash facilities should be available when handling this product. Contaminated and wet clothing should be changed. The listed protective equipment is a recommendation. A risk assessment of the actual risk may lead to other requirements.
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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	Fluid
Color	Yellow.
Odor	Sweetish.
Comments, Odor limit	Not known.
Comments, pH (as supplied)	Not known.
Melting point/melting range	Value: -27 °C (-17°F)
Comments, Boiling point / boiling range	Look at the decomposition temperature.
Comments, Flash point	Not known.
Comments, Evaporation rate	Not known.
Flammability (solid, gas)	Not known
Comments, Explosion limit	Not known.
Comments, Vapor pressure	Not known.
Comments, Vapor density	Not known.
Specific gravity	Value: 1.2 g/cm <sup>3</sup>

Solubility in water	Insoluble.
Comments, Partition coefficient: n- octanol / water	Not known.
Comments, Spontaneous combustibility	Not known.
Decomposition temperature	Value: ~ 210 °C (~ 410 °F)
Comments, Viscosity	Not known.

## Physical hazards

Explosive properties	Explosive.
Oxidizing properties	Not known.

## 9.2. Other information

### Other physical and chemical properties

Physical and chemical properties	Not known.
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity	No reactivity hazards.
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### 10.2. Chemical stability

Stability	Stable under normal temperature conditions and recommended use.
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### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Explosive when mixed with oxidizing substances.
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### 10.4. Conditions to avoid

Conditions to avoid	Risk of explosion by shock, heat, static electricity, ultrasound and radio transmitters.
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### 10.5. Incompatible materials

Materials to avoid	Strong oxidizing agents, strong acids, strong bases.
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### 10.6. Hazardous decomposition products

Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Nitrous gases (NOx).
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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Potential acute effects

Inhalation	Low evaporation.
Skin contact	Skin penetration possible. Dermal uptake can cause headache
Eye contact	Moderately irritating.
Ingestion	May cause discomfort if swallowed.

#### Delay / Repeating

Sensitization	Based on available data the classification criteria are not met.
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#### Carcinogenic, Mutagenic or Reprotoxic

Carcinogenicity	Based on available data the classification criteria are not met.
Mutagenicity	Based on available data the classification criteria are not met.
Reproductive toxicity	Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecotoxicity Not classified as dangerous to the environment.

### 12.2. Persistence and degradability

Persistence and degradability Data lacking.

### 12.3. Bioaccumulative potential

Bioaccumulative potential The product contains potentially bioaccumulating substances.

### 12.4. Mobility in soil

Mobility The product has poor water-solubility.

### 12.5. Results of PBT and vPvB assessment

PBT assessment results Not PBT

vPvB evaluation results Not vPvB

### 12.6. Other adverse effects

Environmental details, conclusion The product is not regarded as environmentally hazardous.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Specify the appropriate methods of disposal Residues of explosives must immediately be removed for intermediate storage and disposed for safely destruction. Product and package is hazardous waste. Deliver to authorized waste vendor.

Contact local authorities regarding waste treatment of explosives.

Product classified as hazardous waste Yes

## SECTION 14: Transport information

### 14.1. UN number

ADR 0477

RID 0477

IMDG 0477

ICAO/IATA 0477

### 14.2. UN proper shipping name

ADR SUBSTANCES, EXPLOSIVE, N.O.S. (Butyl-NENA)

RID SUBSTANCES, EXPLOSIVE, N.O.S. (Butyl-NENA)

IMDG SUBSTANCES, EXPLOSIVE, N.O.S. (Butyl-NENA)

ICAO/IATA SUBSTANCES, EXPLOSIVE, N.O.S. (Butyl-NENA)

### 14.3. Transport hazard class(es)

ADR 1.3C

RID 1.3C

IMDG 1.3C

ICAO/IATA 1.3C

### 14.4. Packing group

Comment Not relevant.

### 14.5. Environmental hazards

IMDG Marine pollutant No

## 14.6. Special precautions for user

ADR Other applicable information	Package Method EP01 (Composite packings 6HA1)
EmS	F-B, S-Y
ICAO/IATA Other applicable information	Prohibited

## 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution category	Not relevant.
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## SECTION 15: Regulatory information

EC no.	279-976-7
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### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

References (laws/regulations)	<p>CHIP Regulations. The Chemicals (Hazard Information and Packaging for Supply) Regulation.</p> <p>Commission Regulation (EU) No 453/2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex II Safety Data Sheets.</p> <p>Commission Regulation (EU) No 453/2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex II Safety Data Sheets.</p> <p>Occupational Exposure Limits. EH40/2010.</p> <p>The Hazardous Waste (England and Wales) Regulations 2005 with amendments.</p> <p>National regulation regarding handling of explosives. (Directive 93/15 EEC)</p> <p>Dangerous Goods regulations</p> <p>The Safety Data Sheet is based on information provided by the producer.</p>
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Declaration no.	42632
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### 15.2. Chemical safety assessment

chemical safety assessment has been carried out	No
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## SECTION 16: Other information

Supplier's notes	The information contained in this SDS must be made available to all those who handle the product.
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Expl. 1.3; H203;
List of relevant R phrases (under headings 2 and 3).	<p>R2 Risk of explosion by shock, friction, fire or other sources of ignition.</p> <p>R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.</p> <p>R33 Danger of cumulative effects.</p> <p>R51/53 Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.</p>

List of relevant H-phrases (Section 2 and 3).

H203 Explosive; fire, blast or projection hazard.  
H301 Toxic if swallowed  
H311 Toxic in contact with skin.  
H331 Toxic if inhaled.  
H373 May cause damage to organs through prolonged or repeated exposure  
H411 Toxic to aquatic life with long lasting effects.

Recommended restrictions on use

The product can only be handed out to personnel that have valid permits issued by the police.

Information which has been added, deleted or revised

New Safety Data Sheet.

Date issued

June 13, 2012