1 Identification

- **Product identifier**
  - Trade name: 37mm Launching / Blank Cartridge
  - Product code: MP-4-LC

- **Recommended use and restriction on use**
  - **Recommended use:** Explosive product.
  - **Restrictions on use:** Contact manufacturer

- **Details of the supplier of the Safety Data Sheet**
  - **Manufacturer/Supplier:**
    NonLethal Technologies, Inc.
    9419 Rt 286 Hwy W
    Homer City, PA 15748
    USA
    +1 724-479-5100
    nlt@nonlethaltechnologies.com

- **Emergency telephone number:** 1-800-255-3924 (Intl.: +1 813-248-0585) (CHEMTEL # MIS9685256)

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Expl. 1.4 H204 Fire or projection hazard.

- **Label elements**
  - **GHS label elements**
    The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms:**
    The following pictograms are optional for OSHA GHS labeling; GHS01. Notification is still required on the SDS.

  ![GHS01]

- **Signal word:** Warning
- **Hazard statements:**
  - H204 Fire 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.
  - P280 Wear protective gloves / eye protection / face protection.
  - P373 DO NOT fight fire when fire reaches explosives.
  - P370+P380 In case of fire: Evacuate area.
  - P372 Explosion risk in case of fire.
  - P401 Store in accordance with local/regional/national/international regulations.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards** There are no other hazards not otherwise classified that have been identified.

(Cont'd. on page 2)
Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)

Trade name: 37mm Launching / Blank Cartridge

---

**3 Composition/information on ingredients**

- **Chemical characterization: Mixtures**

<table>
<thead>
<tr>
<th>Components</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7757-79-1</td>
<td>potassium nitrate</td>
<td>60-80%</td>
</tr>
<tr>
<td>16291-96-6</td>
<td>coal</td>
<td>10-20%</td>
</tr>
<tr>
<td>7704-34-9</td>
<td>sulfur</td>
<td>10-20%</td>
</tr>
<tr>
<td>15245-44-0</td>
<td>lead 2,4,6-trinitro-m-phenylene dioxide/ lead staphate</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>10022-31-8</td>
<td>barium nitrate</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>1345-04-6</td>
<td>antimony sulphide</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>7782-42-5</td>
<td>graphite</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

**Additional information:**
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements refer to section 16.

---

**4 First-aid measures**

- **Description of first aid measures**
- **General information:**
  Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
  Wash with soap and water.

(Cont’d. on page 3)
5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    DO NOT fight fire when fire reaches explosives.
    Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used. If the fire reaches the cargo, withdraw and let fire burn.
  - For safety reasons unsuitable extinguishing agents: None.
- Special hazards arising from the substance or mixture
  During heating or in case of fire poisonous gases are produced.
  Product may explode if burned in confined space. Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely.
- Advice for firefighters
  - Protective equipment:
    Wear self-contained respiratory protective device.
    Wear fully protective suit.
  - Additional information:
    Eliminate all ignition sources if safe to do so.
    Cool endangered receptacles with water spray.
    Flammability Classification: (defined by 29 CFR 1910.1200) Explosive. Can explode under fire conditions. Individual devices will randomly explode. Will not mass explode if multiple devices are involved. Burning material may produce toxic and irritating vapors. In unusual cases, shrapnel may be thrown from exploding devices under containment. See 2008 Emergency response Guidebook for further information.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures:
  Wear protective equipment. Keep unprotected persons away.
  Remove persons from danger area.
  Ensure adequate ventilation.
  Protect from heat.
  Isolate area and prevent access.
Trade name: 37mm Launching / Blank Cartridge

- **Environmental precautions:**
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Methods and material for containment and cleaning up:**
  Pick up mechanically.
  Send for recovery or disposal in suitable receptacles.

- **Reference to other sections:**
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

### 7 Handling and storage

- **Handling**
  - **Precautions for safe handling:** Handle with care. Avoid jolting, friction and impact.
  - **Information about protection against explosions and fires:**
    Protect from heat.
    Emergency cooling must be available in case of nearby fire.

- **Conditions for safe storage, including any incompatibilities**
  - **Storage**
    - **Requirements to be met by storerooms and receptacles:**
      Avoid storage near extreme heat, ignition sources or open flame.

  - **Information about storage in one common storage facility:**
    Store away from foodstuffs.
    Store away from flammable substances.

  - **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

- **Specific end use(s):** No relevant information available.

### 8 Exposure controls/personal protection

- **Control parameters**

  | Components with limit values that require monitoring at the workplace: |
  | 15245-44-0 lead 2,4,6-trinitro-m-phenylene dioxide/ lead styphnate |
  | **EV (Canada)** | Long-term value: 0.05 mg/m³ as Pb, Skin (organic compounds) |
  | 10022-31-8 barium nitrate |
  | **PEL (USA)** | Long-term value: 0.5 mg/m³ as Ba |
  | **REL (USA)** | Long-term value: 0.5 mg/m³ as Ba |
  | **TLV (USA)** | Long-term value: 0.5 mg/m³ as Ba |

(Cont'd. on page 5)
### Trade name: 37mm Launching / Blank Cartridge

<table>
<thead>
<tr>
<th>EL (Canada)</th>
<th>Long-term value: 0.5 mg/m³ as Ba</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMPE (Mexico)</td>
<td>Long-term value: 0.5 mg/m³ A4; como Ba</td>
</tr>
</tbody>
</table>

**1345-04-6 antimony sulphide**

| PEL (USA) | Long-term value: 0.5 mg/m³ as Sb |
| REL (USA) | Long-term value: 0.5 mg/m³ as Sb |
| TLV (USA) | Long-term value: 0.5 mg/m³ as Sb |
| EL (Canada)| Long-term value: 0.5 mg/m³ as Sb |
| LMPE (Mexico)| Long-term value: 0.5 mg/m³ como Sb |

**7782-42-5 graphite**

| PEL (USA) | Long-term value: 15 mppcf* mg/m³ |
| REL (USA) | Long-term value: 2.5* mg/m³ |
| TLV (USA) | Long-term value: 2* mg/m³ |
| EL (Canada)| Long-term value: 2 mg/m³ |
| EV (Canada)| Long-term value: 2 mg/m³ |
| LMPE (Mexico)| Long-term value: 2* mg/m³ |

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.Keep away from foodstuffs, beverages and feed.Wash hands before breaks and at the end of work.
- **Engineering controls:** Provide adequate ventilation.
- **Breathing equipment:** Not required under normal conditions of use.
- **Protection of hands:**
  Wear gloves for the protection against mechanical hazards according to OSHA and NIOSH rules.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
- **Eye protection:**

  ![Safety glasses](image)

  Follow relevant national guidelines concerning the use of protective eyewear.
**Trade name:** 37mm Launching / Blank Cartridge

(Cont'd. of page 5)

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information on basic physical and chemical properties</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Solid metal cylinder</td>
</tr>
<tr>
<td>Color</td>
<td>According to product specification</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>pH-value</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Melting point/Melting range</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Boiling point/Boiling range</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous)</strong></td>
<td>Fire or projection hazard.</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Danger of explosion</strong></td>
<td>Heating may cause an explosion.</td>
</tr>
<tr>
<td><strong>Explosion limits</strong></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with</strong></td>
<td>Water: Insoluble.</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td>No relevant information available.</td>
</tr>
</tbody>
</table>

(Cont'd. on page 7)
10 Stability and reactivity

- **Reactivity**: No relevant information available.
- **Chemical stability**: No decomposition if used and stored according to specifications.
- **Thermal decomposition / conditions to be avoided**: No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**: Fire or projection hazard. Toxic fumes may be released if heated above the decomposition point. Reacts with strong acids and alkali.
- **Conditions to avoid**: Excessive heat. Sources of ignition, open flame, incompatible materials.
- **Incompatible materials**: Oxidizers, strong bases, strong acids
- **Hazardous decomposition products**: Carbon monoxide and carbon dioxide
  - Nitrogen oxides
  - Sulfur oxides (SOx)

11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity**:
    - **LD/LC50 values that are relevant for classification**:
      - **15245-44-0**: lead 2,4,6-trinitro-m-phenylene dioxide/ lead stynphate
        - Oral: LD50 650 mg/kg (rat)
  - **Primary irritant effect**:
    - **On the skin**:
      - Not a skin irritant in unused form. Vapors/particles from used product are possibly irritating to skin.
    - **On the eye**:
      - Not an eye irritant in unused form. Vapors/particles from used product are possibly irritating to eyes.
  - **Sensitization**: Based on available data, the classification criteria are not met.
  - **Carcinogenic categories**
    - **IARC (International Agency for Research on Cancer)**:
      - **15245-44-0**: lead 2,4,6-trinitro-m-phenylene dioxide/ lead stynphate
        - 2B
    - **NTP (National Toxicology Program)**:
      - **15245-44-0**: lead 2,4,6-trinitro-m-phenylene dioxide/ lead stynphate
        - R
    - **OSHA-Ca (Occupational Safety & Health Administration)**:
      - None of the ingredients are listed.

- **Probable route(s) of exposure**:
  - Skin contact.
  - Eye contact.
- **Acute effects (acute toxicity, irritation and corrosivity)**: Danger of blast or crush-type injuries.
- **Repeated dose toxicity**: From product as supplied: None.
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acc. to OSHA HCS (29 CFR 1910.1200)

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Revision: 06/23/2016

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(Cont’d. of page 7)

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
- Germ cell mutagenicity: Based on available data, the classification criteria are not met.
- Carcinogenicity: Based on available data, the classification criteria are not met.
- Reproductive toxicity: Based on available data, the classification criteria are not met.
- STOT-single exposure: Based on available data, the classification criteria are not met.
- STOT-repeated exposure: Based on available data, the classification criteria are not met.
- Aspiration hazard: Based on available data, the classification criteria are not met.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No relevant information available.
  - Persistence and degradability: No relevant information available.
  - Bioaccumulative potential: May be accumulated in organism.
  - Mobility in soil: No relevant information available.
- Ecotoxicological effects:
  - Remark: Harmful to fish
- Additional ecological information
- General notes:
  - Avoid release to the environment.
  - The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary.
  - Harmful to aquatic organisms
  - Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not be excluded.
  - Other adverse effects: No relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation:
    - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
    - Incinerate in accordance with local, state and federal regulations.
    - The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

  - Uncleaned packagings
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
- DOT, ADR, IMDG, IATA: UN0012

(Cont’d. on page 9)
Trade name: 37mm Launching / Blank Cartridge

<table>
<thead>
<tr>
<th>UN proper shipping name</th>
<th>DOT, ADR, IMDG, IATA</th>
<th>CARTRIDGES FOR WEAPONS, INERT PROJECTILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es)</td>
<td>DOT</td>
<td>1.4</td>
</tr>
<tr>
<td>Class</td>
<td>1.4S</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td>1.4S</td>
<td></td>
</tr>
<tr>
<td>ADR, IMDG, IATA</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>1.4S</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td>1.4S</td>
<td></td>
</tr>
<tr>
<td>Packing group</td>
<td>DOT</td>
<td>II</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>EMS Number:</td>
<td>Not applicable. F-S,B-X</td>
</tr>
<tr>
<td>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA
  - Section 302 (extremely hazardous substances):
    - None of the ingredients are listed.
  - Section 304 (emergency release notification):
    - None of the ingredients are listed.
  - Section 355 (extremely hazardous substances):
    - None of the ingredients are listed.
  - Section 313 (Specific toxic chemical listings):
    - 7757-79-1 potassium nitrate

(Cont’d. on page 10)
### Trade name: 37mm Launching / Blank Cartridge

| **TSCA (Toxic Substances Control Act)** |  |
| All ingredients are listed. |  |
| **Proposition 65 (California)** |  |
| **Chemicals known to cause cancer:** |  |
| 15245-44-0 lead 2,4,6-trinitro-m-phenylene dioxide/ lead stynphate |  |
| **Chemicals known to cause reproductive toxicity for females:** |  |
| None of the ingredients are listed. |  |
| **Chemicals known to cause reproductive toxicity for males:** |  |
| None of the ingredients are listed. |  |
| **Chemicals known to cause developmental toxicity:** |  |
| 15245-44-0 lead 2,4,6-trinitro-m-phenylene dioxide/ lead stynphate |  |
| **Carcinogenic categories** |  |
| EPA (Environmental Protection Agency): |  |
| 10022-31-8 barium nitrate | D, CBD(inh), NL(oral) |
| IARC (International Agency for Research on Cancer): |  |
| 15245-44-0 lead 2,4,6-trinitro-m-phenylene dioxide/ lead stynphate | 2B |
| NIOSH-Ca (National Institute for Occupational Safety and Health): |  |
| None of the ingredients are listed. |  |

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Date of preparation / last revision**: 06/23/2016 / -

- **Abbreviations and acronyms:**
  - ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - LDI: Lowest Lethal Dose Observed
  - Expl. 1.4: Explosives – Division 1.4
  - Unst. Expl.: Explosives – Unstable explosive
  - Flam. Sol. 1: Flammable solids – Category 1
  - Ox. Sol. 2: Oxidizing solids – Category 2
  - Acute Tox. 4: Acute toxicity – Category 4
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Repr. 1A: Reproductive toxicity – Category 1A
  - STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

(Cont'd. on page 11)
Trade name: 37mm Launching / Blank Cartridge

Sources
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Safety Data Sheets, Individual Manufacturers
SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

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