<table>
<thead>
<tr>
<th>LTR</th>
<th>DESCRIPTION</th>
<th>DATE</th>
<th>BY</th>
<th>APPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>REDRAWN; CONVERTED TO SDS FORMAT</td>
<td>16/03/09</td>
<td>DRW</td>
<td>SJ</td>
</tr>
</tbody>
</table>

This document does not contain any US export controlled technical data.
1. **IDENTIFICATION**

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Actuating Cartridge, Power Device</th>
</tr>
</thead>
</table>

**Recommended use of the chemical and restrictions on use**

**Identified uses**

- Fire Extinguisher Actuator

**Restrictions on use**

- Not user serviceable. Do not attempt disassembling.

**Company Identification**

UTC Aerospace Systems

4200 Airport Drive, NW

Wilson, NC 27896

**Customer Information Number**

(253) 237-7004

**Emergency Telephone Number**

1-800-451-8386 Site Code: 33067

**Issue Date**

July 28, 2015

**Supersedes Date**

July 9, 2013 Rev. A

_Safety Data Sheet prepared in accordance with OSHA’s Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)_

2. **HAZARD IDENTIFICATION**

**Hazard Classification**

Explosives – Division 1.4

**Label Elements**

**Hazard Symbols**

Signal Word: Warning

**Hazard Statements**

Fire or projection hazard

**Precautionary Statements**

**Prevention**

- Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- Ground/bond container and receiving equipment.
- Do not subject to grinding/shock/friction.
- Wear face protection.
2. HAZARD IDENTIFICATION

Response
In case of fire: Evacuate area.
Explosion risk in case of fire.
Do NOT fight fire when fire reaches explosives.
Fight fire with normal precautions from a reasonable distance.

Storage
Store in accordance with local regulations.

Disposal
Dispose of contents/container in accordance with local regulation.

Other Hazards
None identified.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture contained in a sealed device.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead Azide</td>
<td>13424-46-9</td>
<td>65 - 75%</td>
</tr>
<tr>
<td>Hexanitrostilbene</td>
<td>20062-22-0</td>
<td>10 - 20%</td>
</tr>
<tr>
<td>Zirconium</td>
<td>7440-67-7</td>
<td>5 - 15%</td>
</tr>
<tr>
<td>Potassium Perchlorate</td>
<td>7778-74-7</td>
<td>1 - 10%</td>
</tr>
<tr>
<td>Fluoropolymer binder</td>
<td>9011-17-0</td>
<td>0.1 - 1.0%</td>
</tr>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>0.1 - 1.0%</td>
</tr>
</tbody>
</table>

Note: Material content is less than 0.72 grams per unit in a hermetically sealed capsule.

4. FIRST-AID MEASURES

Description of necessary first-aid measures

Eyes
No specific treatment is required as exposure is unlikely under normal conditions of use.

Skin
No specific treatment is required as exposure is unlikely under normal conditions of use.

Ingestion
No specific treatment is required as exposure is unlikely under normal conditions of use.

Inhalation
No specific treatment is required as exposure is unlikely under normal conditions of use.

Most important symptoms/effects, acute and delayed
Aside from the information found under Description of necessary first-aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

Notes to Physicians
Treat symptomatically.
5. **FIRE - FIGHTING MEASURES**

**Suitable Extinguishing Media**
Use extinguishing agent appropriate to other materials involved. Keep containers and surroundings cool with water spray as containers may explode in the heat of a fire.

**Specific hazards arising from the chemical**
Do not fight fires involving explosives. Product may explode. Evacuate the area and allow to burn or fight fire remotely. May release toxic fumes during a fire.

**Special Protective Actions for Fire-Fighters**
Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

6. **ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**
If devices are spilled from their shipping or storage container and are damaged, cordon off the area until the situation has been properly assessed. Wear appropriate protective clothing to shield from accidental detonation.

**Environmental Precautions**
None

**Methods and materials for containment and cleaning up**
Recover the devices by hand and inspect in a shielded area before repacking. Dispose of damaged detonators as described in Section 13. Suspect or damaged articles should be labeled and consigned for correct destruction.

7. **HANDLING AND STORAGE**

**Precautions for safe handling**
Wear appropriate protective clothing. Devices should be stored in the packaging supplied until required for use. Follow industry guidelines for handling explosives. Uninstalled actuators should only be handled by personnel trained to handle explosive devices. Static grounding is recommended when handling unshunted devices.

**Conditions for safe storage**
Keep away from friction, impact, heat, flame, radio transmitters, electric storms and electric currents, including those caused by static electricity. Store in original packaging in dry area at 50 to 85 °F (10 to 30°C). Keep away from other explosives. Do not disassemble detonators as this may cause them to explode.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**
Exposure limits are listed below, if they exist.

**Lead Azide, as Pb**
ACGIH: TLV 0.05 mg/m³ 8h TWA.
OSHA: PEL 0.05 mg/m³ 8h TWA.

**Zirconium and Compounds as Zr**
ACGIH: TLV 5 mg/m³ 8h TWA, 10 mg/m³ 10-min STEL
OSHA: PEL 5 mg/m³ 8h TWA.
8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Graphite**
ACGIH: TLV 2 mg/m³ 8h TWA.
OSHA: PEL 15 mg/m³ 8h TWA, total dust
5 mg/m³ TWA, respirable fraction

**Appropriate engineering controls**
Work with device in a shielded area. Static grounding is recommended when handling unshunted devices.

**Individual protection measures**
**Respiratory Protection**
Not normally required.
**Skin Protection**
Cotton gloves.
**Eye/Face Protection**
Chemical goggles or safety glasses with side shields.
**Body Protection**
Cotton clothing and conductive-soled shoes.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Color</td>
<td>N/A</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
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</tr>
<tr>
<td>Melting Point (°C/F)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C/F)</td>
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</tr>
<tr>
<td>Vapor Pressure</td>
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</tr>
<tr>
<td>Evaporation Rate (BuAc=1)</td>
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</tr>
<tr>
<td>Solubility in Water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>VOC (g/l)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>VOC (%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
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</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>480°F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosive limit</td>
<td>Not applicable</td>
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<tr>
<td>Lower explosive limit</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

10. **STABILITY AND REACTIVITY**

**Reactivity**
No data available
10. STABILITY AND REACTIVITY

   Chemical Stability
   Actuators are stable under normal conditions of operation.

   Possibility of hazardous reactions
   Hazardous polymerization will not occur.

   Conditions to Avoid
   Exposure to low level electric current - impact - heat - static - shock - radio frequency (RF) energy

   Incompatible Materials
   Corrosive materials - copper tools - materials that can build up an electrostatic charge

   Hazardous Decomposition Products
   Oxides of carbon – lead compounds – zirconium compounds – potassium compounds

11. TOXICOLOGICAL INFORMATION

   The chemicals contained in the actuator are hermetically sealed and pose no hazard under normal conditions of operation and storage. The information below is applicable only if the device ruptures before use.

   Acute Toxicity
   No relevant studies identified.

   Specific Target Organ Toxicity (STOT) – single exposure
   No relevant studies identified.

   Specific Target Organ Toxicity (STOT) – repeat exposure
   Lead Azide: May cause damage to organs through prolonged or repeated exposure. (route of exposure: inhalation)

   Serious Eye damage/Irritation
   No relevant studies identified.

   Skin Corrosion/Irritation
   No relevant studies identified.

   Respiratory or Skin Sensitization
   No relevant studies identified.

   Carcinogenicity
   Lead Azide: IARC 2A: Probably carcinogenic to humans, NTP: Anticipated Carcinogen

   Germ Cell Mutagenicity
   No relevant studies identified.

   Reproductive Toxicity
   Lead Azide: May damage fertility or the unborn child (route of exposure: oral)

   Aspiration Hazard
   Not an aspiration hazard.
12. ECOLOGICAL INFORMATION

Ecotoxicity
Devices are sealed and present no ecological hazard to the environment.

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
This material should be disposed of by a competent body familiar with explosive materials in accordance with all applicable local and national regulations. Ensure packaging is free of explosive material prior to disposal.

14. TRANSPORT INFORMATION

DOT CFR 172.101 Data Cartridges, Power Device, (1.4S) UN0323, PGII
UN Proper Shipping Name Cartridges, Power Device
UN Class (1.4S)
UN Number UN0323
UN Packaging Group II
Classification for AIR Consult current IATA Regulations prior to shipping by air.
Transportation (IATA)

15. REGULATORY INFORMATION

United States TSCA Inventory
All components of this product are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Canada DSL Inventory
All ingredients in this product have been verified for inclusion on the Domestic Substance List (DSL) or the Nondomestic Substance List.

SARA Title III Sect. 311/312 Categorization
Pressure Hazard (Explosive)

SARA Title III Sect. 313
This product contains the following chemicals listed in Section 313 at or above de minimis concentrations: Lead compounds
15. REGULATORY INFORMATION

California Proposition 65
This product contains materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
ECHA: European Chemicals Agency
EC50: Effect Concentration 50%
IARC: International Agency for Research on Cancer
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
N/A: Denotes no applicable information found or available
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Revision Date: July 28, 2015
Replaces: July 9, 2013 Rev. A
Changes made: Updated to GHS Classification.

Information Source and References
This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

Prepared By: EnviroNet LLC.

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