



HAZARDOUS CHEMICAL MATERIAL SAFETY DATA SHEET
(Conforms to the requirements of 29 CFR 1910.1200)

I. PRODUCT IDENTITY: Cartridges, power device, UN0323
1.4S, Pkg. Gr. II
US DOT EX-9609043 (1996090043)
(Cartridge Assembly, CAD P/N: 074055,
Fike P/N: 02-4134)
Net Explosive Weight 1.500 grams per unit

| | |
|---|---|
| CARTRIDGE ACTUATED DEVICES, INC. 51 Dwight Place Fairfield, N.J. 07004 Telephone Number: 973-575-1312 Prepared by CAD Engineering | 24 HOUR EMERGENCY PHONE # IN U.S.A.: 800-424-9300 OUTSIDE U.S.A.: 202-483-7616 CALL COLLECT FIRE, SPILL, EMERGENCY ONLY |
|---|---|

Material(s) described is/are: Electro-Pyrotechnic device and by-products of initiation.

II. HAZARDOUS INGREDIENTS AND EXPOSURE LIMITS: N/A

Chemical and common name of Hazardous chemical ingredients:

| COMMON NAME | CAS NO | Wt % | OSHA (PEL) | ACGIH(TLV). |
|--------------------|-------------|------------|------------|--------------|
| Nitroglycerin | 000055-63-0 | 4.0 – 40.0 | 2.00mg/m3 | 0.46mg/m3 |
| Potassium Chlorate | 003811-04-9 | < 0.02 | - | - |
| Lead Thiocyanate | 000592-87-0 | < 0.02 | 0.05mg/m3* | 0.05mg/m3* |

(* as Lead)

III. PHYSICAL AND CHEMICAL CHARACTERISTICS

| | | | |
|-------------------|-------------|----------------------|-----|
| Boiling point: | N/A | Solubility in water: | N/A |
| Specific gravity: | N/A | pH: | N/D |
| Vapor Pressure: | N/D | Evaporation Rate: | N/A |
| % Volatile: | Negligible. | | |



IV. FIRE, EXPLOSION AND REACTIVITY HAZARD DATA

DANGER Extremely Flammable --EXPLOSIVE--
Keep away from heat and keep shunted.

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|-----------------------------------|--|
| Flash Point: | N/D |
| Flammable Limits: | None, Explosive Device |
| Auto-Ignition Temperature: | 225° F |
| Extinguishing Media: | Dry, Chemical Extinguisher |
| Special Fire-Fighting Procedures: | None. |
| Grounding Procedure: | Insure that the device is shunted and handlers are grounded. |
| Stability Considerations: | None |
| Incompatibility: | Shock, Flame, Friction, Temperature high heat and static sources. |
| Hazardous decomposition products: | None |
| Hazardous products of combustion: | Flame, high heat, carbon monoxide, carbon dioxide, oxides of nitrogen, hydrogen chloride, trace cyanide compounds, oxides and salts of lead. Under certain conditions, device can propel high velocity particles on initiation. |
| Hazardous Polymerization: | None |

V. HEALTH HAZARD DATA

Emergency and First Aid Procedure:

Treat burns and any laceration by cleaning and applying sterile bandages. Transport individual for further medical treatment.

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|-------------------------|---|
| Primary Route of Entry: | N/A (cartridge is intact) Inhalation of actuation fumes. |
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| | |
|---------------------|---|
| Cancer Information: | Not listed as carcinogen by N.T.P. if cartridge is intact |
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|-----------------------------|-----------------------|
| Reported effects on Humans: | Respiratory irritant. |
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|--------|---------------------------|
| Other: | N/A (cartridge is intact) |
|--------|---------------------------|



VI. SPILL AND LEAK PROCEDURES

Steps to be taken if material is spilled: (applies only if cartridge is ruptured)

Clean spill after liberally wetting down with solvent (Acetone, Butyl Acetate or Alcohol) by wiping material up with paper towels or with cotton rag. Keep a fire extinguisher present. Wear safety glasses, protective gloves, and non-static generating clothing during clean up or transfer operation.

Waste Disposal Method:

Disposal must be in accordance with local, state, and Federal regulations.

VII. APPLICABLE CONTROL MEASURES

Appropriate Hygienic Practices:

N/A

Personal Protective Equipment:

Safety glasses & grounding devices (ground straps and/or conductive footwear). When firefighting, wear NIOSH approved gas respirator.

Work Practices:

Avoid high temperatures; keep the cartridge shunted and wear personal protective equipment. Work behind shielding.

Handling and Storage precaution:

Recommended storage, 70°F

Engineering Controls:

Work with device in a shielded area, keep shunted until installed.

Protective Measures during Repair and Maintenance:

Eliminate static discharge sources. Avoid flame or high heat. Shield the device when working with the device.

VIII. REGULATORY INFORMATION

OSHA Status:

This product contains Lead as Lead Thiocyanate and Potassium Chlorate that are hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910:1200.

TSCA Chemical Inventory:

This product contains Lead as Lead Thiocyanate and Potassium Chlorate that are on the EPA Toxic Substance Control Act inventory list.

California Proposition 65:

To the best of Cartridge Actuated Devices Inc. knowledge, this product contains a trace amount of a Lead Compound which is listed as a substance that the state of California has found to cause cancer, birth defects or other reproductive effects.



SARA 313 Title III:

Section 302 Extremely Hazardous Substance:

| <u>COMPONENT</u> | <u>Wt %</u> | <u>RQ</u> . |
|------------------|-------------|-------------|
| Nitroglycerin | 4.0 – 40.0 | 10 LBS |

Section 311 / 312 Hazardous Category:

- HC-1: Acute health hazard
- HC-2: Chronic health hazard
- HC-3: Fire hazard
- HC-4: Sudden release of pressure hazard
- HC-5: Reactive hazard

Section 313 Toxic Chemicals:

| <u>COMPONENT</u> | <u>Wt %</u> | . |
|------------------|-------------------------------------|---|
| Nitroglycerin | 4.0 – 40.0 | |
| Lead Thiocyanate | < 0.02 (contains < 0.013% of Lead) | |

CERCLA Reportable Quantity:

| <u>COMPONENT</u> | <u>Wt %</u> | <u>RQ</u> . |
|------------------|-------------|-------------|
| Nitroglycerin | 4.0 – 40.0 | 10 LBS |

RCRA Status:

This product exhibits the following characteristics listed in 40CFR261, Subpart C:
Ignitability and Reactivity.

IX. OTHER INFORMATION

- ACGIH: American Conference of Governmental Industrial Hygienists
- CAS: Chemical Abstract Service
- CERCLA: Comprehensive Emergency Response, Compensation and Liability Act
- CFR: Code of Federal Regulations
- DOT: Department of Transportation
- NIOSH: National Institute for Occupational Safety and Health
- N.T.P: National Toxicology Program
- OSHA: Occupational Safety and Health Administration
- PEL: Permissible Exposure Limit
- RCRA: Resource Conservation and Recovery Act
- RQ: Reportable Quantity
- SARA: Superfund Amendment Reauthorization Act
- TLV: Threshold Limit Value (Registered Trademark of ACGIH)
- TSCA: Toxic Substances Control Act



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Net Reactive Material Content: 1.5 grams maximum per unit.