

Safety Data Sheet

Issue Date: 01-May-2012

Revision Date: 14-Feb-2017

Version 1

1. IDENTIFICATION

Product Identifier

Product Name Cartridge, Power Device

Other means of identification

SDS # AET-009

UN/ID No UN0276

Recommended use of the chemical and restrictions on use

Recommended Use Fire extinguisher cartridge.

Details of the supplier of the safety data sheet

Supplier Address

Applied Energy Technology Corp.
2105 S. Hardy Drive, Suite #20
Tempe, AZ 85282
Ph: 480-894-1719 Mon-Thurs 7:00 a.m. - 4:30 p.m.

Emergency Telephone Number

Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Metal cases approximately
3/4" Hex x 1 1/4" long

Physical state Solid

Classification

Exposure to products ingredients is unlikely, due to metal casing.

Acute toxicity - Oral	Category 3
Explosives	Division 1.4

Signal Word

Danger

Hazard statements

Toxic if swallowed
Fire or projection hazard



Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 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 protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
 Rinse mouth
 In case of fire: Evacuate area
 DO NOT fight fire when fire reaches explosives
 Fight fire with normal precautions from a reasonable distance

Precautionary Statements - Storage

Store locked up
 Store in accordance with local regulations

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards

Toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Please also refer to subsequent sections of this SDS for additional information regarding the components of this product.

Chemical Name	CAS No.	Weight-%
Proprietary Organic Compound 1	Proprietary	Proprietary
Proprietary Metal	Proprietary	Proprietary
Proprietary Salt	Proprietary	Proprietary
Proprietary Nitrate	Proprietary	Proprietary
Proprietary Metal Oxide	Proprietary	Proprietary

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First Aid Measures

General Advice	Provide this SDS to medical personnel for treatment. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, get medical attention.
Skin Contact	Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation develops or persists, seek medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Get medical attention.
Ingestion	Immediately call a poison center or doctor/physician. Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Most important symptoms and effects

Symptoms	Toxic if swallowed. The primary hazards from improper handling and misuse of these components are physical wounds resulting from detonation. Close proximity during detonation may cause damage to eyes, ears, and skin due to loud noise and high energy shrapnel. Post detonation fumes are noxious and can cause irritation.
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Fire or projection hazard. Mass detonating from excessive heat (176.6°C/400°F+) will produce shrapnel to approximately 50 ft. In case of fire, evacuate area.

Hazardous Combustion Products Post detonation fumes are noxious.

Protective equipment and precautions for firefighters

Fight fire with normal precautions from a reasonable distance. DO NOT fight fire when fire reaches explosives. Maintain 50 to 100 foot distance. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Personal Precautions Use personal protection recommended in Section 8. Evacuate personnel to safe areas.

Environmental precautions

Environmental precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up If components are released from packaging and still intact individually, handle sparingly to repack. If individual components are released from packaging, are individually damaged and explosive material is visible or separating, use extreme caution not to expose to friction, static, or impact. Do not handle. Consult manufacturer in either case.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling

Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing and eye/face protection. Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Ground/bond container and receiving equipment. Do not subject to grinding/shock/friction. Do NOT remove black rubber shunt plug or other shunting devices until after installation. Do NOT subject to any electronic test equipment. Take precautionary measures against static discharges.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep container tightly closed and store in a cool, dry and well-ventilated place. Store locked up. Store in accordance with local regulations.

Incompatible Materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Proprietary Organic Compound 1	TWA: 0.5 mg/m ³ S*	(vacated) TWA: 1.5 mg/m ³ (vacated) S*	TWA: 1.5 mg/m ³ STEL: 3 mg/m ³
Proprietary Metal	STEL: 10 mg/m ³ Zr STEL: 10 mg/m ³ Zr TWA: 5 mg/m ³ Zr TWA: 5 mg/m ³ Zr	TWA: 5 mg/m ³ Zr (vacated) TWA: 5 mg/m ³ (vacated) TWA: 5 mg/m ³ Zr (vacated) STEL: 10 mg/m ³ (vacated) STEL: 10 mg/m ³ Zr	IDLH: 50 mg/m ³ Zr IDLH: 25 mg/m ³ Zr TWA: 5 mg/m ³ Zr TWA: 5 mg/m ³ Zr except Zirconium tetrachloride Zr STEL: 10 mg/m ³ Zr STEL: 10 mg/m ³ Zr
Proprietary Metal Oxide	TWA: 5 mg/m ³ respirable particulate matter	TWA: 10 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ fume and total dust Iron oxide (vacated) TWA: 5 mg/m ³ respirable fraction regulated under Rouge	IDLH: 2500 mg/m ³ Fe dust and fume TWA: 5 mg/m ³ Fe dust and fume

Appropriate engineering controls

Engineering Controls

Apply technical measures to comply with the occupational exposure limits. Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Chemical safety goggles/faceshield. Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection

Use ONLY cotton protective gloves. Wear suitable protective clothing. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection

If detonated, or if otherwise necessary, wear a MSHA/NIOSH approved respirator. If necessary, wear a MSHA/NIOSH-approved respirator. Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	Metal cases approximately 3/4" Hex x 1 1/4" long	Odor	Not determined
Color	Not determined	Odor Threshold	Not determined

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	Not determined	
Melting Point/Freezing Point	Not determined	
Boiling Point/Boiling Range	Not determined	
Flash Point	204.4 °C / 400 °F	
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Not determined	
Flammability Limits in Air		
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not determined	
Vapor Density	Not determined	
Relative Density	Not determined	
Water Solubility	Not determined	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children. Avoid temperatures above 350 +°F. Mechanical shock. Extreme heat, flame, and static discharge.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

If detonated, fumes are noxious.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact	Avoid contact with eyes.
Skin Contact	Avoid contact with skin.
Inhalation	Do not inhale.
Ingestion	Toxic if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Proprietary Organic Compound 1	= 71 mg/kg (Rat)	-	-
Proprietary Metalloid	= 650 mg/kg (Rat)	-	-
Proprietary Nitrate	= 3015 mg/kg (Rat)	-	-
Proprietary Metal Oxide	> 10000 mg/kg (Rat)	-	-

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Nitrate or nitrite ingested under conditions that result in endogenous nitrosation are considered IARC group 2A carcinogens.

Chemical Name	ACGIH	IARC	NTP	OSHA
Proprietary Nitrate		Group 2A		X
Proprietary Metal Oxide		Group 3		
Proprietary Organic Compound 2		Group 3		

Legend

IARC (International Agency for Research on Cancer)
Group 2A - Probably Carcinogenic to Humans
Group 3 - Not Classifiable as to Carcinogenicity in Humans
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 99.00 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Proprietary Organic Compound 1		5 - 8.7: 96 h Pimephales promelas mg/L LC50 flow-through 1.9 - 6.6: 96 h Lepomis macrochirus mg/L LC50 static 5.4 - 7.4: 96 h Oncorhynchus mykiss mg/L LC50 static 3.0 - 5.0: 96 h Pimephales promelas mg/L LC50 static 5.6 - 10: 96 h Lepomis macrochirus mg/L LC50 flow-through	

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

California Hazardous Waste Status

Chemical Name	California Hazardous Waste Status
Proprietary Metal	Ignitable powder
Proprietary Nitrate	Ignitable Reactive
Proprietary Salt	Toxic Ignitable Reactive

14. TRANSPORT INFORMATION

Note

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

UN/ID No UN0276
Proper Shipping Name Cartridges, power device
Hazard Class 1.4C

IATA

UN/ID No UN0276
Proper Shipping Name Cartridges, power device
Hazard Class 1.4C

IMDG

UN/ID No UN0276
Proper Shipping Name Cartridges, power device
Hazard Class 1.4C
Marine Pollutant Yes

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Proprietary Organic Compound 1	X	X	X	Present	X	Present		X
Proprietary Metal	X	X	X		X	Present	X	X
Proprietary Metalloid	X	X	X		X	Present	X	X
Proprietary Nitrate	X	X	X	Present	X	Present	X	X
Proprietary Salt	X	X	X	Present	X	Present	X	X
Proprietary Metal Oxide	X	X	X	Present	X	Present	X	X
Proprietary Organic Compound 2	X	X	X	Present	X	Present	X	X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Proprietary Nitrate -		Proprietary	1.0

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Proprietary Organic Compound 1	X	X	X
Proprietary Metal	X	X	X
Proprietary Metalloid	X		
Proprietary Nitrate	X	X	X
Proprietary Salt	X	X	X
Proprietary Metal Oxide	X	X	X
Proprietary Organic Compound 2			X

16. OTHER INFORMATION**NFPA****Health Hazards**

Not determined

Flammability

Not determined

Instability

Not determined

Special Hazards

Not determined

HMIS**Health Hazards**

Not determined

Flammability

Not determined

Physical hazards

Not determined

Personal Protection

Not determined

Issue Date:

01-May-2012

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14-Feb-2017

Revision Note:

New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet