Safety Data Sheet

Material Name: Actuating Cartridge, Power Device

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Name: Hermetically sealed cartridge containing gas generating explosives
Product Use: Fire extinguisher actuator
Synonyms: Hermetically sealed, small cup designs, PN's 282816, 282817, 346070, 424030, 446032, 446090, 446090-1, 446158, 446189, 446195, 446196, 446197, 446201, 446203,446224, 446225, 446226, 446282, 446283, 446290, 446307, 446806, 876296-2, 876561-2, 878562-1, 878563-1,A800545-2, A805300-2, A805300-41, A805300-43, A805300-44, A805300-45, A805300-46.

Manufacturer Information

UTC Aerospace Systems
4200 Airport Drive, NW
Wilson, NC 27896

Phone: 252-237-7004

Emergency #: 1-800-451-8346 (3E Company)
Site Code: 333067

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	EINCES#	Component		Percent
13424-46-9	236-542-1	Lead azide	E Repro.Cat.1 Repro.Cat.3 Xn N; R-3 R-61 R-62 R-20/22 R-33 R-50 R-53	65-75
20062-22-0	243-494-5	Hexanitrostilbene (HNS)	E; R-2	10-20
7778-74-7	231-912-9	Potassium perchlorate	O Xn; R-9 R-22	1-10
7440-67-7	231-176-9	Zirconium	F; R-15 R-17	5-15
9011-17-0	-	Fluoropolymer binder	-	0.1-1
7782-42-5	231-955-3	Graphite	Not Classified	0.1-1

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Explosives, Lead compounds, organic, Lead (7439-92-1).

General Product Information

Note: The above ingredients are present at less than 0.72 grams in a hermetically sealed capsule.

This material has been evaluated using the criteria specified in European Union Directives 67/548/EEC, 99/45/EC and 2001/58/EC.

* * * Section 3 - Hazards Identification * * *

Substance Preparation Classification

Extreme risk of explosion by fire or other sources of ignition.

Emergency Overview

Product is a metal case with various electrical connectors. When activated, this product ejects small metal fragments propelled by rapidly expanding gas. Under normal conditions of operation and storage, no adverse health effects are expected. When activated, a small quantity of irritating and toxic fumes and gases are released, including lead oxide or other lead compounds. However, in normal operation, these fumes are diluted by a large volume of extinguishing agent (such as Halon) and pose minimal risk.

Potential Health Effects: Eyes

No adverse effects expected under normal conditions of operation. While exposure is unlikely, detonation fumes may irritate the eyes. If uninstalled product is activated, small metal fragments are ejected that could damage the eyes.

Potential Health Effects: Skin

No adverse effects expected under normal conditions of operation. While exposure is unlikely, detonation fumes may irritate the skin. If uninstalled product is activated, small metal fragments are ejected that could damage the skin.

Potential Health Effects: Ingestion

Ingestion is not an expected exposure route under normal conditions of operation.

Safety Data Sheet

Material Name: Actuating Cartridge, Power Device

Potential Health Effects: Inhalation

Inhalation is not an expected exposure route under normal conditions of operation. While exposure is unlikely, detonation fumes may irritate the respiratory tract.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

For any eye exposure, flush eyes with plenty of cool water for at least 15 minutes. Seek medical attention if irritation develops or persists. If an eye is struck by shrapnel fragment, seek immediate medical attention.

First Aid: Skin

Wash skin immediately with soap and water. Seek medical attention if irritation develops or persists. If skin is injured by a shrapnel fragment, seek immediate medical attention.

First Aid: Ingestion

Ingestion is highly unlikely. If gastrointestinal irritation develops after exposure to detonation fumes, seek medical advice.

First Aid: Inhalation

Remove affected person to fresh air. If irritation or difficult breathing develops or persists, seek medical attention.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: NA
Method Used: NA
Upper Flammable Limit (UFL): NA
Lower Flammable Limit (LFL): NA
Auto Ignition: 480°F (294°C)
Flammability Classification: NA
Rate of Burning: NA

General Fire Hazards

Actuator devices can be detonated by fire or high heat, electricity, and high radiofrequency energy.

Hazardous Combustion Products

Lead compounds, potassium, and zirconium oxides and chlorides, carbon dioxide and monoxide.

Extinguishing Media

DO NOT FIGHT FIRES INVOLVING EXPLOSIVES! Try to keep fire from reaching explosives. Move product away from fire area if it has not yet been exposed to heat. Isolate area. Guard against intruders.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear, including self-contained breathing apparatus.

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Not applicable under normal conditions of operation.

Clean-Up Procedures

Carefully pick up devices. Repack undamaged devices for storage and separate visibly damaged devices for proper disposal.

Evacuation Procedures

Keep unnecessary personnel away.

Special Procedures

Damaged actuators should be electrically detonated under controlled conditions by properly trained personnel.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Uninstalled actuators should only be handled by personnel trained to handle explosive devices. Static grounding is recommended when handling unshunted devices.

Storage Procedures

Store in accordance with the applicable national, regional and local regulations regarding the safe handling and storage of explosive devices. At the minimum, store in a dry area at temperature range of 50 to 85 °F (10 to 30 °C). Keep away from flammable materials and sources of heat and flame. Prevent static discharges.

Specific Use

Fire extinguisher actuator

Safety Data Sheet

Material Name: Actuating Cartridge, Power Device

* * * Section 8 - Exposure Controls / Personal Protection * * *

Substance Exposure Limits

Lead azide (13424-46-9)

ACGIH: 0.05 mg/m3 TWA (related to Lead)
Austria: 0.4 mg/m3 STEL (related to Lead)
0.1 mg/m3 MAK (inhalable fraction) (related to Lead)
Denmark: 0.05 mg/m3 TWA (dust, powder and fumes, as Pb) (related to Lead)
Finland: 0.1 mg/m3 TWA (related to Lyijy)
France: 0.1 mg/m3 VME (related to Lead)
Germany: 0.1 mg/m3 TWA (inhalable fraction) (related to Lead)
400 µg/L, 300µg/L (Women < 45 years); Parameter = lead; Material = whole blood; Sampling time = not fixed (related to Lead)
0.1 mg/m3 MAK (inhalable fraction) (related to Lead)
0.8 mg/m3 Peak (inhalable fraction) (related to Lead)
Greece: 0.15 mg/m3 TWA (related to Lead)
Ireland: 0.15 mg/m3 TWA (related to Lead)
Italy: 0.15 mg/m3 TWA (related to Lead)
Netherlands: 0.15 mg/m3 MAC (related to Lead)
Portugal: 0.05 mg/m3 TWA (related to Lead)
Spain: 0.15 mg/m3 VLA-ED (related to Lead)
Sweden: 0.1 mg/m3 LLV (total dust); 0.05 mg/m3 LLV (respirable dust) (related to Lead)

Zirconium (7440-67-7)

ACGIH: 10 mg/m3 STEL
5 mg/m3 TWA
Austria: 5 mg/m3 MAK (inhalable fraction)
Belgium: 10 mg/m3 VLE
5 mg/m3 VLE
Denmark: 5 mg/m3 TWA
Finland: 1 mg/m3 TWA
Germany: 1 mg/m3 TWA (inhalable fraction)
1 mg/m3 MAK (inhalable fraction)
1 mg/m3 Peak (inhalable fraction)
Greece: 10 mg/m3 STEL
5 mg/m3 TWA
Ireland: 10 mg/m3 STEL
5 mg/m3 TWA
Netherlands: 5 mg/m3 MAC
Portugal: 5 mg/m3 TWA
Spain: 10 mg/m3 VLA-EC
5 mg/m3 VLA-ED

Graphite (7782-42-5)

ACGIH: 2 mg/m3 TWA (respirable fraction, all forms except graphite fibers)
Austria: 6 mg/m3 MAK (respirable fraction, fibrous dust)
Belgium: 2 mg/m3 VLE
Denmark: 2.5 mg/m3 TWA (respirable)
Finland: 5 mg/m3 TWA
France: 2 mg/m3 VME (inhalable fraction)
Germany: 1.5 mg/m3 MAK (respirable fraction); 4 mg/m3 MAK (inhalable fraction)
Greece: 10 mg/m3 TWA (inhalable fraction); 5 mg/m3 TWA (respirable fraction)
Netherlands: 2 mg/m3 MAC (respirable dust)
Portugal: 2 mg/m3 TWA (respirable fraction, all forms except graphite fibers)
Spain: 2 mg/m3 VLA-ED (dust)
Sweden: 5 mg/m3 LLV (total dust)
United Kingdom: 10 mg/m3 TWA (total inhalable dust); 4 mg/m3 TWA (respirable dust)

Safety Data Sheet

Material Name: Actuating Cartridge, Power Device

Engineering Controls

Not ordinarily required.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Safety glasses with side shields.

Personal Protective Equipment: Skin

Gloves are not ordinarily required.

Personal Protective Equipment: Respiratory

Respiratory protection is not ordinarily required.

Personal Protective Equipment: General

Use good industrial hygiene practices when handling the actuating cartridge.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance: Metal case with various electrical connectors.

Odor: None

Physical State: Manufactured device.

pH: NA

Vapor Pressure: NA

Vapor Density: NA

Boiling Point: NA

Melting Point: NA

Solubility (H2O): NA

Specific Gravity: NA

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Actuators are stable under normal conditions of operation.

Chemical Stability: Conditions to Avoid

Fire/heat, unintentional application of electricity, and high radiofrequency energy.

Incompatibility

Do not attempt to open or remove internal sealed capsule containing explosive material.

Hazardous Decomposition

Lead compounds, potassium, and zirconium oxides and chlorides, carbon dioxide and monoxide.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

The chemicals contained in the actuator are hermetically sealed and pose no hazard under normal conditions of operation and storage. When activated, a small quantity of irritating and toxic fumes and gases are released, including lead oxide or other lead compounds. However, in normal operation, these fumes are diluted by the large volume of extinguishing agent (such as Halon) and pose minimal risk.

B: Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

Carcinogenicity

A: General Product Information

No information available for the product.

B: Substance Carcinogenicity

Lead azide (13424-46-9)

IARC: Supplement 7, 1987; Monograph 23, 1980 (Evaluated as a group) (related to Lead) (Group 2B (possibly carcinogenic to humans))
Monograph 85, 2004 (related to Lead compounds, organic) (Group 3 (not classifiable))
France: Carcinogen categories 1,2,3 (related to Lead)
Germany: Category 3B (could be carcinogenic for man) (related to Lead)

Safety Data Sheet

Material Name: Actuating Cartridge, Power Device

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information is available for product. Due to physical form of actuator, and small quantity of chemicals, environmental impact is negligible.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Lead azide (13424-46-9)

Test & Species		Conditions
96 Hr LC50 brook trout	4.1 mg/L	
96 Hr LC50 fathead minnow	6.5 mg/L	related to Lead
48 Hr LC50 water flea	600 µg/L	related to Lead

Mobility

No information is available for product.

Persistence & Degradation

No information is available for product.

Bioaccumulation

No information is available for product.

Other Adverse Effects

No information is available for product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

Dispose according to national, regional and local regulations

* * * Section 14 - Transportation Information * * *

IATA Information

Shipping Name: Cartridges, power device
UN #: UN0323 **Hazard Class:** 1.4S

ICAO Information

Shipping Name: Cartridges, power device
UN #: UN0323 **Hazard Class:** 1.4S

IMDG Information

Shipping Name: Cartridges, power device
UN #: UN0323 **Hazard Class:** 1.4S

ADR Information

Shipping Name: Cartridges, power device
UN #: UN0323 **Hazard Class:** 1

RID Information

Shipping Name: Cartridges, power device
UN #: UN0323 **Hazard Class:** 1

Safety Data Sheet

Material Name: Actuating Cartridge, Power Device

* * * Section 15 - Regulatory Information * * *

European Union Regulatory Information

A: General Product Information

Labeling:

R3 Extreme risk of explosion by fire or other sources of ignition.

A:Component Analysis - Invento

Component	CAS #	EEC	CAN	TSCA
Lead azide	13424-46-9	EINECS	DSL	Yes
Hexanitrostilbene (HNS)	20062-22-0	EINECS	NDSL	Yes
Zirconium	7440-67-7	EINECS	DSL	Yes
Potassium perchlorate	7778-74-7	EINECS	DSL	Yes
Graphite	7782-42-5	EINECS	DSL	Yes
Fluoropolymer binder	9011-17-0	No	DSL	Yes

B:Seveso II Directive - Qualifying Quantities

No information is available.

* * * Section 16 - Other Information * * *

Full text of all Risk Phrases in Sections 2 & 3

R3 Extreme risk of explosion by fire or other sources of ignition.
R2 Risk of explosion by fire or other sources of ignition.

MSDS History

MSDS History:

New MSDS, 12/10/2004
Revision A: 7/10/2013 renumbered, contact information updated and reviewed

Key/Legend

TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NTP = National Toxicology Program; IATA = International Air Transport Association; IMO = International Maritime Organization; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; DFG = Deutsche Forschungsgemeinschaft; MAC/MAK = Maximum Concentration Value in the Workplace; TWA = Time Weighted Average; STEL = Short-term Exposure Limit; EINECS = European Inventory of Existing Commercial Chemical Substances; EEC = European Economic Community; VLA/VLE = Work Exposure Threshold; OEL = Occupational Exposure Limit; NA = Not Applicable or Not Available.

Other Information

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

Contact: UTC Aerospace Systems (UTAS), Materials Engineering
Contact Phone: 1-252-237-7004

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