

THIS SAFETY DATA SHEET(SDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200. THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD. (REFER TO THE OSHA CLASSIFICATION IN SEC.I.) THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE. THE EXPOSURE TO THE COMMUNITY, IF ANY, IS QUITE DIFFERENT.

SPILL & LEAKAGE INFORMATION (Section 6) - FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 1-800-424-9300, 1-703-527-3887, CCN 23010, EMS NO. F-B, S-X

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: CARTRIDGES FOR POWER DEVICES-CHS, CA
Chemical Name: Mixture---Metal Alloy
Synonyms: Rimfire Cartridge for power devices, 22, 25, 27 Caliber
Power tool Round, Power Load, Powder Load, Booster
Formula: Not applicable---mixture

SUPPLIER

UCAN Fastening Products

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2. COMPOSITION/ INFORMATION ON INGREDIENTS

Components	% By Weight	CAS #(USA)
Copper	50-65	7440-50-8
Zinc	15-32	7440-66-6
Nitrocellulose	6-14	9004-70-0
Nitroglycerin	0.5-2	55-63-0
Dibutyl phthalate	0.5-2	84-74-2
Lead Styphnate	0.1-1	15245-44-0

3. HAZARDS IDENTIFICATION

CAUTION: EXPLOSIVE, KEEP AWAY FROM HEAT. DO NOT SUBJECT TO MECHANICAL SHOCK. PARTICALES FROM FIRING MAY BE HARMFUL IF INHALED. DO NOT TAKE INTERNALLY.

HAZARD RATINGS (for dust or fume)

Degree of hazard (0=low, 4=extreme)

HMIS

Heath:0

Flammability:0

Physical Hazard:

Explosive : 2

HUMAN THRESHOLD RESPONSE DATA

Odor Threshold: Unknown

Irritation Threshold: Unknown

IDLH Value: The IDLH for this product is not known. The IDLH for dibutyl phthalate is 4000mg/m³. The IDLH for copper and lead is

100mg/m³. The IDLH for nitroglycerin is 75 mg/m³.

POTENTIAL HEALTH EFFECTS

This product is composed of a finished metal alloy cartridge which contains the various components completely sealed within. Therefore, under normal handling of this product, no exposure to any harmful materials will occur.

When the product is fired, a small amount of particles may be generated which may be slightly irritating to the eyes and the respiratory tract. The particles may contain trace amounts of these harmful substances.

- Copper:** Inhalation of high concentrations of metallic dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain.
- Nitroglycerin:** Will produce dilation of blood vessels and drop in blood pressure which may affect the heart. It has also been shown to cause methemoglobinemia(cyanosis).
- Lead:** Ingestion of large amount of lead can cause abdominal pain, constipation, Cramps, nausea and/ or vomiting. Chronic exposure to lead can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage in humans including changes in cognitive function.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

There are no medical conditions known to be aggravated by exposure to this product in its solid form. Exposure to lead can aggravate anemia, cardiovascular and respiratory disease.

POTENTIAL ENVIRONMENTAL EFFECTS:

Product has not been tested for environmental properties. Lead has been shown to be toxic to aquatic species.

4. FIRST AID MEASURES

- EYE CONTACT:** Immediately flush out fume or particles with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.
If eye irritation develops, call a physician at once.
- SKIN CONTACT:** Wash skin with plenty of soap and water.
- INHALATION:** If symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention.
- INGESTION:** If ingested, immediately call a physician.

5. FIRE FIGHTING MEASURES

<i>PROPERTY:</i>	<i>VALUE</i>	<i>PROPERTY:</i>	<i>VALUE</i>
Explosive	Yes	Flammable	Not applicable
Combustible	Not applicable	Pyrophoric	No
Flash Point	Not applicable	Burning Rate of Material	Not applicable
Lower Explosive Limit	Not applicable	Autoignition Temp	No data
Upper Explosive Limit	Not applicable	Flammability Classification	Explosive

UNUSUAL FIRE AND EXPLOSIVE HAZARDS: If fire reaches cargo, do not fight. Evacuate all person, including emergency responders from the area for 0.5 km in all directions.

EXTINGUISHING MEDIA: Flood area with water. If the fire reaches the cargo, withdraw and left fire burn.

SPECIAL FIREFIGHTING PROCEDURES: In case of fire, use normal fire fighting equipment. Protection concerns must also address the potential of the physical characteristic of this product as explosive.

6. ACCIDENTAL RELEASE MEASURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL LOCAL TRANSPORTATION DEPARTMENT.

Spills of this material should be handles carefully. Do not subject materials to mechanical shock. A spill of this material will normally not require emergency response team capabilities. If, however, a large spill occurs, call CALL CHEMTREC AT 1-800-424-9300/ + 1-703-527-3887 for technical assistance.

7. HANDLING AND STORAGE

HANDLING: No special requirements

STORAGE: No special requirements

Shelf Life Limitations: Not known

Incompatible Materials for Packaging: Not known

Incompatible Materials for Storage or Transport: Acids, Class A & B explosives, strong oxidizers, and caustics.

CONDITIONS TO AVOID: Mechanical impact or shock and electrical discharge. Cartridges placed in a high radio frequency energy field(radar stations).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CHEMICAL NAME	ACGIH TLV	OSHA PEL
Copper	0.2mg/m ³ (fume),1mg/ m ³ (dust and mists)	0.1mg/m ³ (fume),1mg/ m ³ (dust and mists)
Zinc	None established	None established
Nitrocellulose	None established	None established
Nitroglycerin	0.05ppm(0.46mg/ m ³) Skin	Ceiling—0.2ppm(2mg/ m ³) Skin
Dibutyl phthalate	5 mg/ m ³	5 mg/ m ³
Lead Styphnate	None established	None established

ENGINEERING CONTROLS: Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation. Use explosion-proof ventilation. Use hearing protection.

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Not normally needed.

RESPIRATORY PROTECTION: Respiratory protection not normally needed.

GENERAL HYGIENE: Do not eat, drink, or smoke while using this product. Wash hands thoroughly after use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY:	VALUE	PROPERTY:	VALUE
Appearance:	Cylindrical brass cartridge	Vapor Density(air=1):	Not applicable
Odor:	None	Boiling Point:	Not applicable
Molecular Weight:	Not applicable-Mixture	Melting Point:	Not applicable
Physical State:	Solid	Specific Gravity(g/cc):	Not applicable
pH:	Not applicable	Bulk Density:	Not applicable
Vapor Pressure(mm Hg):	Not applicable	Viscosity(cps):	Not applicable
Solubility in Water(20°C):	Insoluble	Decomposition Temp:	Not applicable
Volatiles, Percent by volume:	Not applicable	Octanol/water partition coefficient:	Not applicable

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal temperatures and pressure

MATERIALS TO AVOID: Acids, Class A & B explosives, strong oxidizers, and caustics.

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides, carbon monoxide, lead oxides, carbon dioxide, lead dust/fume

HAZARDOUS POLYMERIZATION: Will not occur

OTHER Cartridge may detonate if case is punctured or severely damaged

11. TOXICOLOGICAL INFORMATION

POTENTIAL EXPOSURE ROUTES: The physical nature of this product makes absorption from any route unlikely. A small amount of inhalable particles may be created when projectile is fired.

ACUTE ANIMAL TOXICITY DATA:

For Product		For components					
		Copper	Zinc	Nitroglycerin	Lead Styphnate	Nitrocellulose	Dibutyl phthalate
Oral LD ₅₀	Not applicable for product	3.5mg/kg(mouse, intraperitoneal)	No data	105mg/kg (rat)	No data	>5 g/kg (rat)	8g/kg (rat)
Dermal LD ₅₀	Not applicable for product	375mg/kg(rabbit, subcutaneous)	No data	>280mg/kg (rabbit)	No data	No data	>20ml/kg (rabbit)
Inhalation LC ₅₀	Not applicable for product. Particles generated from firing may be slightly toxic.	No data	No data	No data	No data	No data	4250mg/ m ³ (rat)
Irritation	Not a skin or eye irritant as loaded round	Respiratory irritant	Eye irritant	Mild eye and skin irritant	No data	No data	No data

SUBCHRONIC/ CHRONIC TOXICITY: Lead has caused blood, kidney and nervous system damage in laboratory animals.

CARCINOGENICITY: The IARC lists lead as possibly carcinogenic to humans.

MUTAGENICITY: This product is not known or reported to be mutagenic. Lead has been shown to be mutagenic in several *in vitro* assays

REPRODUCTIVE, TERATOGENICITY, OR DEVELOPMENTAL EFFECTS: This product is not known or reported to cause reproductive or developmental effects. Lead has been shown to affect fetal development including birth defects and reduce male reproductive function in laboratory animals. Dibutyl phthalate has cause reproductive and developmental effects in animal studies.

NEUROLOGICAL EFFECTS: This product is not known or reported to cause neurological effects. Lead has caused peripheral and central nervous system damage and behavioral effects in laboratory animals.

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:

Not known or reported

12. ECOLOGICAL INFORMATION

ECOTOXICITY: No data is available on this product. Individual constituents are as follows:

Copper: The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentration varying from 0.1 to 1.0mg/l have been found by various investigators to be not toxic for most fish. However, concentrations of 0.015 to 3.0mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustacea, mollusks, insects, and plankton.

Nitrocellulose: LC₅₀>1000mg/l (fish, invertebrates, algae)

Nitroglycerin: Bluegill, 96 hour LC₅₀=1.228mg/l(static)

Lead: LC₅₀(48 hours) to bluegill (*Lepomis macrochirus*) is reported to be 2-5 mg/l. Lead is toxic to waterfowl.

Zinc: The following concentrations of zinc have been reported as lethal to fish:

Rainbow trout fingerlings: 0.13mg/l, 12-24 hours

Bluegill sunfish: 6 hours TLM= 1.9-3.6mg/l(soft water,30°C)

Rainbow trout : 4 mg/l (hard water) 3 days

Sticklebacks: 1mg/l (soft water) 24 hours

The presence of copper appears to have a synergistic effect on the toxicity of zinc towards fish.

MOBILITY: Dissolved lead from degraded bullets may migrate through soil.

PERSISTENCE/DEGRADABILITY: Not biodegradable. Bullets may fragment and decompose in soil leading to accumulation of lead.

BIOACCUMULATION: No data.

13. DISPOSAL CONSIDERATION

Care must be taken to prevent environment contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local ,province and state laws and regulations regarding treatment, storage and disposal for hazardous and non-hazardous wastes.

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME:	Powder Loads
HAZARD CLASS:	1.4S
UN NO:	UN 0323
PACKING GROUP:	II
REPORTABLE QUANTITY:	Not applicable
SPECIAL COMMENTS:	LAND_ ORM-D Reclassification
	AIR- 25kgs per package passenger aircraft

100kgs per package cargo aircraft

15. LIST OF ACRONYMS

HMIS	Hazardous Materials Identification System
IDLH	Immediately Dangerous to Life or Health
IARC	International Agency for Research on Cancer
LC	Lethal Concentration
LD	Lethal Dose
OSHA	Occupational Safety and Health Administration
ORM	Other Regulated Materials
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TLV	Threshold Limit Values

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THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. UCAN BELIEVES THIS INFORMATION TO BE RELIABLE AND CURRENT AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS.

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