

Zero Ammunition Co.,Inc. PO Box 1188 Cullman, AL 35056 1-800-545-9376

Enclosed you will find a Material Safety Data Sheet (“MSDS”) prepared by Zero to assist its customers in recognizing the potential health or safety hazards, if any, associated with commercial use of a product. MSDSs include information on the maximum and recommended average exposure levels of chemicals in workplace air. MSDSs also recommend appropriate safety guidelines dealing with accidental product leaks or spills in the workplace and outline workplace handling procedures for products.

While MSDSs have proved invaluable in the hands of health and safety professionals as a tool for hazard evaluation of products in the confines of the workplace, caution must be exercised against direct extrapolation of MSDS hazard health data to the community environment, outside of the perimeter of the workplace, or use by the general public. For such purposes, safety, health, and environmental professionals should be consulted to interpret MSDS data for each specific situation. In case of an emergency, contact 1-800-255-3924.

This MSDS is intended for your use in meeting your requirements under OSHA’s Hazard Communication Standard (29 CFR 1910.1200) and Sara Title III. Enclosed to further assist you in interpreting the MSDS is a supplement outlining the sections of the MSDS and a glossary of common terms. If you have any questions, please contact me at 1-800-545-9376 for assistance during working hours.

We appreciate the opportunity to be of service to you.

Sincerely,

Alison Harbison
Material Safety Data Sheet Control

MSDS Enclosed:
Product Name: Centerfire Pistol Loaded Round

MATERIAL SAFETY DATA

This Material Safety Data Sheet (MSDS) 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.

I. Product Identification

Product Name: Centerfire Pistol Loaded Round

Synonyms: Super-X Centerfire Pistol/Revolver: 25 Automatic (6.35mm) Expanding point and Full metal case; 30 Luger (7.65mm) Full metal case; 30 Carbine Hollow Soft Point and Full metal case; 32 Smith & Wesson Lead Round Nose and Long Lead Round Nose; 32 Short and Long Colt Lead Round Nose; 32 Automatic Silvertip Hollow Point and Full metal case; 38 Smith & Wesson Lead Round Nose, 380 Automatic Silvertip Hollow Point and Full metal case; 38 Special Silvertip Hollow point, Lead round nose, Lead Semi-wadcutter, lead wadcutter, metal point, silvertip hollow point+p, Jacketed hollow point+p, lead hollow point+p, lead semi-wadcutter +p, match lead mid-range match; 9mm Luger(parabellum): Full metal jacket encapsulated, full metal case, silvertip hollow point; 38 Super Automatic Silvertip hollow point+p, full metal case+p; 357 Magnum jacketed hollow point, Silvertip hollow point, Lead Semi-wadcutter, Jacketed soft point; 10mm Automatic silvertip hollow point; 41 Remington Magnum Silvertip hollow point, hollow soft point, Lead Semi-Wadcutter(med. Vel. & gas check); 45 automatic silvertip hollow point +p, Full metal case, Super-Match Full metal case Semi-Wadcutter; 45 Colt Silvertip hollow point, lead round nose; 45 Winchester magnum: Jacketed soft point, Full metal case; Black Talon; 40 Smith and Wesson: silvertip hollow point, full metal jacket truncated cone, Full metal jacket encapsulated, jacketed hollow point, Full metal jacket, Supreme 357 Magnum 180 gr. Partition Bullet, Supreme 44 Magnum 250 gr. Partition Bullet; Ranger Talon, 40 Cal. 180 gr. JHP ; Ranger Talon, 45 Auto, 230 gr JHP; Ranger Talon, 9mm, 147 gr JHP

Chemical Family: Mixture

Formula: Not Applicable/Mixture

Use Description: Loaded round

OSHA Hazard classification: Explosive

II. Component Data

Product Composition

Consists of the following four components:

<u>Component</u>	<u>Percent</u>	<u>Product</u>	<u>Product Code #</u>
a) Projectile	30-70%	Centerfire Bullets	DPE.000022
b) Shell Case	30-60%	Brass 2XXX Series	BPE.020000
c) Propellant	5-10%	Smokeless Powder	DPE.090000
d) Centerfire Primer	1-4%	Centerfire Primer	DPE.020000

Additional information may be obtained from Zero by requesting the MSDS for any component of interest and quoting the relevant product code number.

All percent compositions specified below are based on the entire product.

A) Projectile

CAS or Chemical name: Lead

CAS Number: 7439-92-1

Percentage Range: 30-70%

Hazardous per 29 CFR 1910.1200: Yes (as dust or fume)

Exposure Standards: See 29 CFR 1910.1025

	OSHA(PEL)		ACGIH(TLV)	
	ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:		10		5
Ceiling:		None		None
Stel:		None		None

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CAS or Chemical Name: Copper

CAS Number: 7440-50-8

Percentage Range: 0-25%

Hazardous per 29 CFR 1910.1200: Yes (as dust or fume)

Exposure Standards: As copper dust

	OSHA(PEL)	ACGIH(TLV)
ppm	mg/cubic-meter	ppm mg/cubic-meter
TWA:	1	1
Ceiling:	None	None
Stel:	None	None

CAS or Chemical Name: Zinc

CAS Number: 7440-66-6

Percentage Range: 0-6%

Hazardous per 29 CFR 1910.1200: Yes (as dust or fume)

Exposure Standards: As zinc oxide

	OSHA(PEL)	ACGIH(TLV)
ppm	mg/cubic-meter	ppm mg/cubic-meter
TWA:	5(respirable) 10 Total	10
Ceiling:	None	None
Stel:	None	None

CAS or Chemical Name: Aluminum

CAS Number: 7429-90-5

Percentage Range: 0-6%

Hazardous per 29 CFR 1910.1200: Yes (as dust or fume)

Exposure Standards:

	OSHA(PEL)	ACGIH(TLV)
ppm	mg/cubic-meter	ppm mg/cubic-meter
TWA:	5(respirable) 15 Total	10
Ceiling:	None	None
Stel:	None	None

CAS or Chemical Name: Antimony

CAS Number: 7440-36-0

Percentage Range .2-2%

Hazardous per 29 CFR 1910.1200: Yes (as dust or fume)

Exposure Standards:

	OSHA(PEL)		ACGIH(TLV)
ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	0.5		0.5
Ceiling:	None		None
Stel:	None		None

B) Shellcase

CAS or Chemical Name: Copper (see above)

CAS Number: 7440-50-8

Percentage Range: 30-45%

CAS or Chemical Name: Zinc (see above)

CAS Number: 7440-66-6

Percentage Range: 10-20%

C) Propellant

CAS or Chemical Name: Nitrocellulose

CAS Number: 9004-70-0

Percentage Range: 5-10%

Hazardous per 29 CFR 1910.1200: Yes

Exposure Standards: None Established

CAS or Chemical Name: Nitroglycerin

CAS Number: 55-63-0

Percentage Range: .5-2%

Hazardous per 29 CFR 1910.1200: Yes

Exposure Standards:

	OSHA(PEL)		ACGIH(TLV)
ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	0.1(skin)		.05 (skin)
Ceiling:	None		None
Stel:	None		None

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CAS or Chemical Name: Dibutyl phthalate

CAS Number: 84-74-2

Percentage Range: .5-2%

Exposure Standards:

OSHA (PEL)		ACGIH(TLV)	
ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	5		5
Ceiling:	None		None
Stel:	None		None

D) Centerfire Primer

CAS or Chemical Name: Copper (see above)

CAS Number : 7440-50-8

Percentage Range: .5-3%

CAS or Chemical Name: Zinc (see above)

CAS Number: 7440-66-6

Percentage Range: .1-1%

CAS or Chemical Name: Lead styphnate

CAS Number: 15245-44-0

Percentage Range: .1-1%

Hazardous per 29 CFR 1910.1200: Yes

Exposure Standards: as lead (see 29 CFR 1910.1025)

OSHA(PEL)		ACGIH(TLV)	
ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	0.05		0.15
Ceiling:	None		None
Stel:	None		None

CAS or Chemical Name: Barium Nitrate

CAS Number: 10022-31-8

Percentage Range: .1-1%

Hazardous per 29 CFR 1910.1200: Yes

Exposure Standards:

OSHA(PEL)		ACGIH(TLV)	
ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	0.5		0.5
Ceiling:	None		None
Stel:	None		None

III. PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.

STORAGE CONDITIONS:

STORE IN A COOL, DRY, WELL-VENTILATED PLACE, AWAY FROM ALL SOURCES OF IGNITION.

DO NOT STORE AT TEMPERATURES ABOVE: NOT APPLICABLE

DO NOT SUBJECT TO MECHANICAL SHOCK.

PRODUCT STABILITY AND COMPATIBILITY

SHELF LIFE LIMITATIONS: 25-30 YEARS

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: ACIDS

IV. PHYSICAL DATA

APPEARANCE: Finished cartridge

FREEZING POINT: Not Applicable

BOILING POINT: Not Applicable

DECOMPOSITION TEMPERATURE: Not Applicable

SPECIFIC GRAVITY: Not Applicable

BULK DENSITY: Not Applicable

Ph @ 25 DEG.C: Not Applicable

VAPOR PRESSURE @ 25 DEG.C: Not Applicable

SOLUBILITY IN WATER: Not Applicable

VOLATILES, PERCENT BY VOLUME: Not Applicable

EVAPORATION RATE: Not Applicable

VAPOR DENSITY: Not Applicable

MOLECULAR WEIGHT: Not Applicable

ODOR: None

COEFFICIENT OF OIL/WATER DISTRIBUTION: Not Applicable

V. PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

RESPIRATORY PROTECTION: Not normally required

VENTILATION: None beyond normal ventilation

SKIN AND EYE PROTECTIVE EQUIPMENT: Use safety glasses

EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):

RESPIRATOR TYPE: Not normally required

PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit): Not normally required.

VI. FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:

EXPLOSIVE: Yes
FLAMMABLE: Not Applicable
COMBUSTIBLE: Not Applicable
PYROPHORIC: No
FLASH POINT: Not Applicable
AUTOIGNITION TEMPERATURE: No Data
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): LEL – Not Applicable UEL – Not Applicable

NFPA RATINGS: Not Established

HMS RATINGS:

Health: 0
Flammability 2
Reactivity 4

EXTINGUISHING MEDIA:

Water spray

Other: Do not fight fire; if fire reaches cargo, flood with water from unmanned hoses.

FIRE FIGHTING TECHNIQUES AND COMMENTS:

See section XI for protective equipment for fire fighting.

Evacuate all persons including emergency personnel from the area for 1500 feet (1/2 mile) in all directions, if fire reaches cargo.

VII. REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:

TEMPERATURES ABOVE: No Data

MECHANICAL SHOCK OR IMPACT: Yes – based on primer

ELECTRICAL (STATIC) DISCHARGE: Yes – based on primer

OTHER: CARTRIDGE MAY DETONATE IF CASE IS PUNCTURED OR SEVERLY DAMAGED

HAZARDOUS POLYMERIZATION: Will not occur

INCOMPATIBLE MATERIALS: Acids

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides, Carbon Monoxide, Carbon Dioxide, Lead Oxides, Lead Dust/fume

OTHER CONDITIONS TO AVOID: CARTRIDGES PLACED IN A HIGH RADIO FREQUENCY ENERGY FIELD (RADAR STATIONS)

SUMMARY OF REACTIVITY:

EXPLOSIVE:	Yes
OXIDIZER:	No
PYROPHORIC:	No
ORGANIC PEROXIDE:	No
WATER REACTIVE:	No

VIII. FIRST AID

EYES:

Not a likely route of exposure.

SKIN:

Not a likely route of exposure.

INGESTION:

Not a likely route of exposure.

INHALATION:

Not a likely route of exposure.

IX. TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION

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.

WARNING STATEMENTS AND WARNING PROPERTIES

PARTICLES FROM FIRING MAY BE HARMFUL IF INHALED.

HUMAN THRESHOLD RESPONSE DATA

ODOR THRESHOLD: No Available Data

IRRITATION THRESHOLD: No Available Data

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration has not been established.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

INHALATION

ACUTE:

Inhalation of lead dust or metal fume may cause irritation to nose, throat, upper respiratory tract and lung. The irritant effects may lead to bronchitis, headache, a fall in blood pressure, weakness, convulsions and collapse may occur. Severe poisoning may impair vision by damaging the optic nerve. The product is composed of a solid projectile. It is judged that the physical nature of the product, and its use would preclude

inhalation of a sufficient amount of lead and the development of these symptoms.

CHRONIC:

Chronic inhalation of lead dust or metal fume may cause damage to central and peripheral nerves, blood, kidneys and the fetus. Male reproductive function may be impaired. Damage to nerves can result in reduction in motor nerve and muscle function. Anemia may result due to interference by lead of hemoglobin synthesis. Lead has been identified as an animal carcinogen; it may produce cancer in humans. Chronic exposure may lead to lead poisoning, known as "Plumbism", causing gingival lead line and an accumulation in body tissues. The product is composed of a solid projectile. It is judged that the physical nature of the product, and its use would preclude inhalation of a sufficient amount of lead and the development of these symptoms.

SKIN:

ACUTE:

Lead can be absorbed through the skin to produce effects similar to those listed for acute inhalation exposure.

CHRONIC:

Lead can be absorbed through the skin to produce effects similar to those listed under chronic inhalation exposure. The product is composed of a solid projectile. It is judged that the physical nature of the product, and its use would preclude skin absorption of a sufficient amount of lead and the development of these acute and/or chronic symptoms.

EYE:

Lead dust and fume can irritate the eyes with conjunctival redness and discharge. It is judged that this effect would not occur because of the physical nature of the product and its use.

INGESTION:

ACUTE:

The effects of lead ingestion would be similar to those listed under acute inhalation exposure in addition to gastrointestinal tract irritation.

CHRONIC:

The effects of lead ingestion would be similar to those listed under chronic inhalation exposure. The product is composed of a solid projectile. It is judged that the physical nature of the product, and its use would preclude ingestion and the development of these acute and/or chronic symptoms.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Exposure to lead can aggravate anemia, cardiovascular and respiratory disease. There are no medical conditions known to be aggravated by exposure to this product, due to its physical nature and use.

INTERACTIONS WITH OTHER CHEMICALS, WHICH ENHANCE TOXICITY

There are no chemicals known to enhance the toxicity of the product.

ANIMAL TOXICOLOGY

ACUTE TOXICITY:

Inhalation LC 50: No available data

Dermal LD 50: No available data

Oral LD 50: No available data

Irritation: Not a skin or eye irritant.

ACUTE TARGET ORGAN TOXICITY:

Lead dust and fume can cause damage to central nervous system, blood, lungs and eyes.

CHRONIC TARGET ORGAN TOXICITY:

Inhalation of lead can cause damage to the blood, central and peripheral nervous systems, and kidney. Lead inhibits the production of hemoglobin, the material in the blood which carries oxygen. Anemia may result. Lead also causes damage to peripheral nerves resulting in a decrease in motor nerve and muscle function. The product is composed of a solid projectile. It is judged that the physical nature of the product and its use would preclude the development of these effects.

Inhalation of iron dust or fumes has been shown to cause a benign pneumoconiosis known as siderosis. This condition is characterized by deposition of iron in the lungs without subsequent fibrotic changes or impairment of lung function. The physical nature of the product, the low percentage of iron in the product, and its use would preclude the development of siderosis.

Inhalation of aluminum dust or fume has produced lung fibrosis in laboratory animals. It is judged that the physical nature of the product, the low percentage of aluminum in the product, and its use would preclude the development of lung fibrosis.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:

Lead has been shown to affect fetal development and reduce male reproductive function. Lead crosses the placenta and may affect the fetus causing birth defects, mental retardation, behavioral disorders, and death

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during the first year of childhood. The product is composed of a solid projectile. It is judged that the physical nature and use of the product would preclude the development of these effects.

CARCINOGENICITY:

This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

Lead is classified as a carcinogen by IARC. Based on the physical nature of the product and its use, it is judged that the risk of cancer is not significant from exposure to the product.

MUTAGENICITY:

This product is not known or reported to be mutagenic.

AQUATIC TOXICITY:

The LC 50 of lead (48 hours) to bluegill (*Lepomis macrochirus*) is reported to be 2-5 mg/l.

X. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:

LAND (US DOT) CARTRIDGES, SMALL ARMS (OTHER THAN BLANKS), 1.4S, UN0012, PG II

WATER (IMO): SAME AS ABOVE

AIR (IATA/ICAO): SAME AS ABOVE

HAZARD LABEL/PLACARD: None Required

REPORTABLE QUANTITY: Not Applicable (Per 49 CFR 172.101, Appendix)

EMERGENCY GUIDE NO.: 114

SPECIAL COMMENTS: May be reclassified domestically as an ORM-D if appropriately packaged per 49 CFR 173.203.

XI. SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 1-800-424-9300.

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REPORTABLE QUANTITY: (Per 40 CFR 302.4) as nitroglycerine 10#, dibutyl phthalate 10#

SPILL MITIGATION PROCEDURES:

This product does represent an explosion hazard when involved in a fire or exposed to heat, friction, shock, etc. Remove all sources of ignition.

AIR RELEASE: Not Applicable

WATER RELEASE: Not Applicable

LAND SPILL: Shut off ignition sources, no flares, smoking or flames in hazard area. Place in proper DOT container, for later disposition.

SPILL RESIDUES:

Dispose of per guidelines under Section XII, WASTE DISPOSAL

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:

--No extra protection required beyond that listed in Section V (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.

XII. WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number:
D003

If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

Other: Deactivation

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY O DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII. ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:

The components of this product are listed on the Toxic Substance Control Act inventory.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986- PROPOSITION 65:

“Warning: This product contains detectable amounts of a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm.”

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:

HAZARD CATEGORIES, PER 40 CFR 370.2

HEALTH: None

PHYSICAL: Sudden release of pressure

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A: EXTREMELY HAZARDOUS SUBSTANCE – THRESHOLD PLANNING QUANTITY: None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45: None Established

XIV. ADDITIONAL INFORMATION

MSDS REVISION STATUS: Synonyms Added

XV. MAJOR REFERENCES

1. Friber, L., G.F. Nordberg, and V.B. Vouk, eds., Handbook on the Toxicology of Metals, Vol.II, Elsevier, New York, 1986.

OTHER REFERENCES ARE AVAILABLE UPON REQUEST

The information in this material safety data sheet 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. Zero believes that this information is reliable and up to date as of the date of this publication, but makes no warranty that it is. Additionally, if this Material Safety Data Sheet is more than three years old, you should contact us at the phone number listed below to make sure this sheet is current.