



MATERIAL SAFETY DATA SHEET

**SMALL ARMS AMMUNITION
BALLISTIC LEAN CENTERFIRE RIFLE AMMUNITION**

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SECTION #1 - PRODUCT IDENTIFICATION:

LEAD-FREE CENTERFIRE RIFLE PRODUCT FAMILY		
Centerfire Metallic Cartridge Including The Following:		
.223 Rem.	.308 Win.	

SECTION #2 - CHEMICAL COMPOUNDS:

CHEMICAL COMPOUNDS			
	CAS NUMBER	TWA UNLESS OTHERWISE NOTED	
		OSHA PEL	ACGIH TLV
Bullet *Zinc Core (As Zinc Oxide)	7440-66-6 1314-13-2	10 mg/m ³ (5 mg/m ³ as respirable dust) Fume: 5 mg/m ³	10 mg/m ³ Fume: 5 mg/m ³
*Copper Jacket & Core	7440-50-8	1 mg/m ³ Fume: .1 mg/m ³	1 mg/m ³ Fume: .2 mg/m ³
Tin	7440-31-5	.1 mg/m ³	2 mg/m ³
Ferro Tungsten (As Tungsten)	12604-57-8	Not Established	5 mg/m ³ 10mg/m ³ STEL
Polymer	None	Not Established	Not Established
Zinc (As Zinc Oxide) (See above)			
Cartridge Case - Brass (As Zinc & Copper) (See above)			
Propellant - Nitrocellulose	9004-70-0	Not Established	Not Established
*Nitroglycerine	55-63-0	.2 mg/m ³ STEL	.46 mg/m ³ (Skin)
Diphenylamine	122-39-4	Not Established	10 mg/m ³
Primer - Diazodinitrophenol	87-31-0	Not Established	Not Established
Tetracene	109-27-3	Not Established	Not Established
Potassium Nitrate	7757-79-1	Not Established	Not Established
*Aluminum	7429-90-5	15 mg/m ³ (5 mg/m ³ as respirable dust)	10 mg/m ³
Nitrocellulose (See above)			

* Indicates toxic chemical(s) subject to the reporting requirements of section 313 of title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR 372.

DEFINITIONS OF ACRONYMS

- OSHA PEL: Federal Occupational Safety and Health Administration's Permissible Exposure Limit. Some states and jurisdictions may have limits other than those listed. Contact your local authorities for Permissible Exposure Limits in your jurisdiction.
- ACGIH TLV: American Conference of Governmental Industrial Hygienists' Threshold Limit Values.
- TWA: Time Weighted Average.
- STEL: Short Term Exposure Limit, the 15-minute exposure that should not be exceeded at any time during a workday.
- CEILING: The concentration that is not to be exceeded at any time during a workday.
- CAS: Chemical Abstracts Service number.

SECTION #3 - PHYSICAL DATA

Boiling Point:	Not Applicable
Melting Point:	Not Applicable
Vapor Pressure:	Not Applicable
Density:	3.1 - 8.0 grams/cc
Solubility (Water):	None
Evaporation Rate:	Not Applicable
Percent Volatiles:	Not Applicable
Vapor Density (Air = 1):	Not Applicable

Appearance: Brass case with copper jacketed zinc core, tungsten polymer core or powdered copper/tin core bullet or solid powdered copper/tin bullet.

Odor: None
Odor Threshold: None

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA:

Flash Point (F):	Not Applicable
Auto Ignition Temperature (F):	Not Applicable
Upper Explosive Limits (Percent):	Not Applicable
Lower Explosive Limits (Percent):	Not Applicable

Fire & Explosion Hazards: May ignite if heated to 250 degrees F, independent of air. Unconfined ignited cartridges can produce low velocity

metallic fragments that may cause eye injury or skin wounds if unprotected by standard fire-fighter turnout gear.

Extinguishing Media: Water

Special Fire Fighting Instructions: Wear full fire-fighter protective gear including face shield or SCBA. Use wide fog pattern nozzle to stop any low velocity fragments. Use water to cool ordinary combustibles below ignition temperature.

SECTION #5A - EXPOSURE & EFFECTS -- INHALATION

ROUTE OF EXPOSURE & EFFECTS - INHALATION

Acute: Acute inhalation of smoke may produce mild throat and eye irritations.

Chronic: None known.

First Aid: Remove person to fresh air. If breathing has stopped, administer artificial respiration. If symptoms should appear, contact physician.

SECTION #5B - EXPOSURE & EFFECTS -- SKIN

ROUTES OF EXPOSURE & EFFECTS - SKIN

Acute: Contact with metal fumes may cause skin irritation.

Chronic: None known.

First Aid: Wash thoroughly with soap and water.

SECTION #5C - EXPOSURE & EFFECTS -- EYES

ROUTES OF EXPOSURE & EFFECTS - EYES

Acute: Contact with large volumes of smoke may cause minor eye irritation.

Chronic: None known.

First Aid: Remove person to fresh air. If foreign body is suspected, wash eyes in fresh water for 15 minutes, contact physician.

SECTION #5D - EXPOSURE & EFFECTS -- INGESTION

ROUTE OF EXPOSURE & EFFECTS - INGESTION

Acute: Ingestion of nitroglycerin is known to cause headaches, convulsions, tachycardia and apnea. Ingestion is not a likely route of exposure.

Chronic: None known.

Note: Wash hands thoroughly with soap and water before eating or smoking.

First Aid: Ingestion is not a likely route of exposure. In case of ingestion, contact physician.

SECTION #5E - EXPOSURE & EFFECTS -- CARCINOGENESIS DATA

N.T.P.: No

I.A.R.C.: No

OSHA: No

SECTION #5F – EXPOSURE & EFFECTS – COMMENTS

None.

SECTION #5G - AGGRAVATION OF PRE-EXISTING HEALTH CONDITIONS

AGGRAVATION TO PRE-EXISTING HEALTH CONDITIONS

None known.

SECTION #6 - REACTIVITY & POLYMERIZATION

Stability: Stable under normal use conditions.

Conditions to Avoid: Individual cartridges may ignite if the primer is struck or if the cartridge is exposed to excess heat.

Incompatible Materials: Oils, Acids, Alkalies, Ammonia, and other corrosive materials.

Hazardous Decomposition Materials: Oxides of Barium, Nitrogen and Carbon.

Polymerization: Will not occur.

SECTION #7 - SPILLS, LEAKS & DISPOSAL PROCEDURES

STEPS TO BE TAKEN - SPILLS:

Avoid conditions detailed in Section #6. If container should rupture place all loose cartridges from broken shipping cases into a sturdy container, secure container carefully.

Waste Disposal Methods: Contact Manufacturer - Product Service (763) 323-3706.

SECTION #8 - SPECIAL PROTECTIVE EQUIPMENT

Ventilation: Use in a well-ventilated area. Consult the current edition of ACGIH Industrial Ventilation Manual and/or NRA ventilation recommendations.

Protective Equipment:

Eyes: Recommend protective eyewear conforming to ANSI Z-87.

Gloves: Not generally required.

Respirators: Use an approved respirator while cleaning range facilities if applicable exposure limits are exceeded.

Hearing Protection: Hearing protection recommended while discharging cartridges.

SECTION #9 - SPECIAL PRECAUTIONS -- STORAGE & HANDLING

Store in a dry, cool area in the original container to assure performance. Keep out of the reach of children. Avoid striking the primer of unchambered cartridges. Remove ammunition from service if any of the following conditions have occurred:

1. Evidence of corrosion.
2. Physical damage.
3. Exposure to oil or spray type lubricants.

Avoid prolonged storage in leather cartridge carriers.

SECTION #10 – TRANSPORTATION INFORMATION

This material is a US Department of Transportation Hazardous Material.

US DOT Proper Shipping Name:	Cartridges, small arms
Hazard Classification:	1.4S
UN Identification Number:	UN0012
Packing Group:	II

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