

MATERIAL SAFETY DATA SHEET

AMMUNITION AND AMMUNITION COMPONENTS

SECTION #1 - PRODUCT IDENTIFICATION:

AMMUNITION PRODUCTS
Ammunition and ammunition components - including the following:
5x56x45mm FMJ M193
Unprimed Centerfire Cases
Primed Centerfire Cases
Bullets

SECTION #2 - CHEMICAL COMPOUNDS:

AMMUNITION COMPONENTS

CHEMICAL COMPOUNDS			
	CAS NUMBER	TWA UNLESS OT	
		OSHA PEL	HERWISE NOTED ACGIH TLV
Primer *Lead Styphnate (As Lead)	12403-82-6	.05 mg/m ³	.05 mg/m ³
*Barium Nitrate (As Barium)	7440-39-3	.5 mg/m ³	.5 mg/m ³
* Antimony Sulfide (As Antimony)	7440-36-0	.5 mg/m ³	.5 mg/m ³
*Aluminum	7429-90-5	15 mg/m ³ (5 mg/m ³ as respirable dust)	10 mg/m ³

CHEMICAL COMPOUNDS			
	CAS NUMBER	TWA UNLESS OTHERWISE NOTED	
		OSHA PEL	ACGIH TLV
Nitrocellulose	9004-70-0	Not Established	Not Established
*Nitroglycerine	55-63-0	.2 mg/m ³ STEL	.46 mg/m ³ (Skin)
Tetracene	109-27-3	Not Established	Not Established
Cartridge Case - Brass (As Zinc & Copper)			
*Copper	7440-50-8	1 mg/m ³ Fume: .1 mg/m ³	1 mg/m ³ Fume: .2 mg/m ³

CHEMICAL COMPOUNDS			
	CAS NUMBER	TWA UNLESS OT	HERWISE NOTED
		OSHA PEL	ACGIH TLV
Bullet - *Lead or Lead Core	7439-92-1	.05 mg/m ³	.05 mg/m ³
*Copper Jacket	7440-50-8	1 mg/m ³ Fume: .1 mg/m ³	1 mg/m ³ Fume: .2 mg/m ³
*Zinc (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
Tin	7440-315	.1 mg/m ³	1 mg/m ³
Primer Cup/Battery Cup/Anvil – Brass- (As Zinc & Copper)			

*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 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:	2.00 - 4.75 grams/cc (dry weight)
Solubility (Water):	40% (Barium Nitrate Only)
Evaporation Rate:	Not Applicable
Percent Volatiles:	Not Applicable
Vapor Density (Air 1):	Not Applicable

Appearance: Centerfire Cases - Brass or nickel-plated brass case formed to formed to specific caliber's

Odor:	None
Odor Threshold:	None

SECTION #4 - FIRE FIGHTING & EXPLOSION DATA:

Flash Point (F):	Not Applicable
Auto Ignition Temperature (F):	Primed cases can pop when heated over 250 degrees (may pop independent of air)

Unprimed cartridges will not ignite.

Upper Explosive Limits (Percent): N/A

Lower Explosive Limits (Percent): N/A

Fire & Explosion Hazards: Primed cases may “pop” if subjected to mishandling. “Popping” may be caused by friction and by percussion, such as hammering, pounding, dropping, or bullet impact. Heating by fire, static electricity, sparks, hot tobacco ashes, or other abuses may also cause primed cases to “pop”.

Unprimed Centerfire Cases: Not Applicable

Extinguishing Media: Water

Special Fire Fighting Instructions: Primed Cases - Full fire fighter personal protection gear, including face shield and SCBA should be utilized.
Unprimed Cases: Not Applicable

SECTION #5A - EXPOSURE & EFFECTS - INHALATION

ROUTE OF EXPOSURE & EFFECTS - INHALATION

Acute: Inhalation of gases and particulates produced while firing ammunition may result in mild throat, eye, upper respiratory and lung irritation. The irritant effects may lead to lung symptoms such as bronchitis. An over exposure to gases or particulates, as a result of lead in the particulates, may also cause: anemia; nervous system symptoms which may include irritability, headache, restlessness, fatigue, muscle weakness, muscle tremor, convulsions, loss of memory, visual and hearing disturbances, loss of coordination; gastrointestinal effects such as

vomiting, colic, diarrhea or constipation; circulatory symptoms such as a drop in blood pressure; reproductive effects including fertility problems, birth defects, miscarriages and possible kidney damage.

Chronic: Prolonged repeated over exposure to fired cartridge gases and particulates, as a result of lead in the particulates, may result in elevated blood lead levels and elevated zinc protoporphyrin levels. Symptoms of chronic overexposure to lead may include: anemia; lead lines on the gums; nervous system symptoms which may include irritability, headache, restlessness, fatigue, muscle weakness (i.e. wrist drop), muscle tremor, convulsions, loss of memory, visual and hearing disturbances, loss of coordination; gastrointestinal effects such as weight loss, vomiting, colic, diarrhea, constipation; circulatory symptoms such as a drop in blood pressure; reproductive effects including fertility problems, birth defects, miscarriages and possible kidney damage.

If acute or chronic symptoms should appear, contact a physician. Blood lead and zinc protoporphyrin levels are recommended and should be monitored as per OSHA 1910.1025.

First Aid: Remove person to fresh air. Seek medical attention.

SECTION #5B - EXPOSURE & EFFECTS – SKIN

ROUTES OF EXPOSURE & EFFECTS - SKIN

Acute: Elemental and inorganic lead compounds are not absorbed through the skin.

Chronic: Elemental and inorganic lead compounds are not absorbed through the skin.

First Aid: Wash exposed areas 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 reported.
- 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:** Acute ingestion of lead may occur from poor personal hygiene associated with the handling of lead bearing materials. The effects of lead ingestion would be similar to those listed under acute inhalation in addition to gastrointestinal irritation.
- Chronic:** Chronic ingestion of lead may occur from poor personal hygiene associated with the handling of lead bearing materials. The effects of lead ingestion would be similar to those listed under chronic inhalation.
- Note:** Wash hands thoroughly with soap and water before eating and 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.: Group 2B, possibly carcinogenic in humans.
OSHA: No

SECTION #5F - EXPOSURE & EFFECTS - COMMENTS

Lead and barium are toxic metals that may be released during the firing of primers. Care should be taken in the cleaning of range facilities to minimize the exposure potential to lead and barium. Persons engaged in these activities should wear protective clothing with an appropriate respirator. Range operators should consult OSHA 1910.1025 for details pertaining to the handling of lead in the work environment.

Severe lead intoxication has been associated in the past with sterility, abortion, and stillbirth. Modern information confirming that lead poisoning affects birth rates or causes injury to the fetus in man is not conclusive.

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

Exposure to lead can aggravate pre-existing anemia, cardiovascular and respiratory diseases and conditions related to the gastrointestinal, reproductive, renal (kidney), and central nervous systems.

Reference: Industrial Toxicology, Safety and Health Applications in the Workplace;
Williams/B.

SECTION #6 – REACTIVITY & POLYMERIZATION

Stability: Stable under normal use conditions.

Conditions to Avoid: Vibration, heat (over 200 degrees F), moisture, concussion, electrostatic discharge, compression, open flame, sparks.

Incompatible Materials: Acids, Alkalies, and other Corrosive Chemicals, Oils, Solvents, Water.

Hazardous Decomposition Materials: Oxides of Barium, Lead, Antimony, Nitrogen, Carbon, Sulfur and Antimony fumes.

Polymerization: Will not occur.

SECTION #7- SPILLS, LEAKS & DISPOSAL PROCEDURES

STEPS TO BE TAKEN - SPILLS:

Avoid conditions detailed in Section #6. Carefully pick up all primed cases and return them to original shipping containers. If original containers are not available, carefully place all loose primed cases from broken shipping containers into water-filled container. Maintain water level above components at all times and secure container.

Waste Disposal Methods: Contact Manufacturer - Product Service +389 (0)2603 923

SECTION # 8- SPECIAL PROTECTIVE EQUIPMENT

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

Protective Equipment:

Eyes: Protective eyewear conforming to ANSI Z-87 must be worn when performing any and all handloading operations. Additional protection, such as face shield and/or machine guards, are strongly recommended.

Gloves: Not generally required.

Respirators: Not generally required.

Hearing Protection: Not Applicable.

SECTION #9 – SPECIAL PRECAUTIONS – STORAGE & HANDLING

STORAGE:

Primed cases:

Primed cases should be stored in a cool dry area, not accessible to children.

Keep storage areas clean. Make sure the surrounding area is free of trash or other readily combustible materials.

The storage area should be free from any possible ignition sources or excessive heat. Avoid storage in areas where mechanical or electrical equipment is in operation.

Do not store primed cases in the same area with solvents, flammable gases, or highly combustible materials.

Observe all applicable local, state, and federal regulations regarding quantity and methods of storage.

Unprimed Centerfire Cases: No special storage required.

HANDLING

Primed cases:

Care must always be exercised in any ammunition loading operation to avoid rough handling and undue force where a primer is involved. Any malfunction of equipment must be cleared with extreme caution. The decamping of cases containing live primers should not be done.

Avoid buildup of static electricity on the person when conducting hand loading procedures. Loading equipment should be electrically grounded.

All loading equipment and adjacent areas must be kept scrupulously clean and free of primer dust and powder accumulations. Work areas and loading equipment must be cleaned by wiping with a damp cloth or sponge, which should be thoroughly rinsed after each use. Maintain work area free of bits of hard, abrasive material during loading operations.

Keep primed cases away from children, household pets, or persons not recognizing them as potentially hazardous.

Never have an open flame, sources of sparks, or hot particles in the vicinity of primed cases.

Plastic Wads: No special handling required.

Unprimed Centerfire Cases: No special handling required.

SECTION #10 - TRANSPORTATION INFORMATION

This material is a Transportation Hazardous Material.

US DOT Proper Shipping Name: **UN 0012 CARTRIDGES FOR WEAPONS,
INERT PROJECTILE; ADR 1.4S**

Hazard Classification: **1.4S**

UN Identification Number: **UN0012**

Packing Group: **II**

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