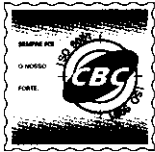




**Companhia Brasileira
de Cartuchos**



PRODUCT AND PROCESS ENGINEERING

MATERIAL SAFETY DATA SHEET	MSDS N°: 010	Rev. 00
	Date : May 13, 2004	
	Supersedes:	Page 1 of 8 Pages
	MATERIAL: Small Arms Ammunition with Lead and Barium Free Primer Centerfire Pistol & Revolver Cartridges – All Calibers	PREPARED BY: Oldemar A. Fonseca Júnior

1- IDENTIFICATION

Product Name : Centerfire Pistol and Revolver Cartridges with Lead and Barium Free Primer - All Calibers

Synonyms : Cartridges, Small Arms (Proper Shipping Name)

Chemical Family : Not Applicable

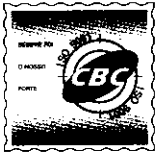
Formula : Not Applicable

Trade Name : Not Applicable

CAS N° : Not Applicable

2- CHEMICAL COMPONENTS

	<u>CAS N°</u>	<u>TLV/TWA</u>
Bullet		
Lead core	7439-92-1	0.05mg/m ³
Copper alloy jacket	7440-50-80	1mg/m ³
Cartridge Case		
Brass	----- x -----	Not Applicable
Propellant		
Nitrocellulose	9004-20-0	Not Applicable
Graphite (added)	7782-42-5	2mg/m ³
Diphenylamine	122-39-4	10mg/m ³
Diisobutyl Adipate	Not Applicable	Not Applicable
Dibutyl phtalate	84-74-2	5mg/m ³
Centralite I	85-98-3	Not Applicable
Potassium Sulphate	Not Applicable	Not Applicable
Potassium Tartrate	Not Applicable	Not Applicable
Nitroglycerin	5563-0	0.2 PPM
Primer Cup		
Brass	----- x -----	Not Applicable
Primer anvil		
Brass	----- x -----	Not Applicable



Primer Mix

Diazodinitrophenol	87-31-0	Not applicable
Tetrazene	109-27-3	Not applicable
Potassium Nitrate	7757-79-1	Not applicable
Aluminium	7429-90-5	10mg/m ³
Nitrocellulose	9004-20-0	Not applicable

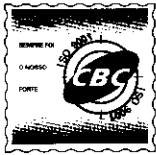
3- PHYSICAL DATA

Boiling Point	:	Not Applicable
Melting Point	:	Not Applicable
Vapor Pressure	:	Not Applicable
Specific Gravity (Water = 1)	:	Not Applicable
Solubility (water)	:	Not Applicable
pH	:	Not Applicable
Volatiles	:	Not Applicable
Evaporation Rate	:	Not Applicable
Vapor Density (Air=1)	:	Not Applicable
Appearance	:	Not Applicable
Odor	:	Not Applicable
Odor Thresold	:	Not Applicable

4- SPECIAL PRECAUTIONS

Storage

- a) Propellant powder is the perishable product in the small arms ammunition cartridges. Normally, is the limiting factor regarding chemical and ballistic stability of ammunitions. The lifetime of the cartridges depends on storage conditions, specifically ambient temperature and humidity. The cartridges shall be stored in an adequate place, well ventilated under conditions of moderate temperature and Relative Humidity for does not affect the stability of the powder.
- b) With the purpose to ascertain proper circulation of air between the ammunition packages and surrounding walls, the followings spare are required:
 - 10 cm from the floor;
 - 40 cm from the walls and from the ceiling.



- c) The cartridges when stored in its original packages at:
- temperature: 20-25 °C (68-77 °F);
 - Relative Humidity: 65-75%;
- have a shelf life of more 10 (ten) years.
- d) The cartridges without the original packages and stored at the mentioned temperature and Relative Humidity, have a shelf life for up to 5 (five) years.
- e) In no case, the following cartridges will have stored for a long time:
- those from field storages which have not been checked again;
 - those have been submitted during several weeks to temperatures between +25 °C (77 °F) and +45 °C (113 °F).
- These cartridges will be specially stored and used within 1 (one) year or soon as possible.
- f) Remove ammunition from service if any of the following conditions have occurred:
- Prolonged storage at or above 65 °C (150 °F);
 - Evidence of corrosion;
 - Physical damage;
 - Exposure to oil or spray type lubricants or in a corrosive atmosphere.
- g) Avoid prolonged storage in leather cartridge carriers.

Handling

- Avoid striking the primer of unchambered cartridges, or shock in handling, storage or use.
- To avoid serious injury, use centerfire pistol and revolver ammunition only in firearms in good condition and originally chambered for a particular caliber.
- Keep the barrel free of any obstruction.
- If the firearm fails to fire, a delayed firing may occur, or the firearm may fire upon being opened. The following procedures shall be complied:
 - keep the muzzle of firearm pointed in safe direction.
 - wait for 30 seconds;
 - protect yourself and others from exposure to the breech area of firearm;
 - with muzzle still pointed in a safe direction unload the firearm carefully.
- A bullet of the fired cartridge has an long range, and can cause serious injury or death. Always be sure of the backstop, and practice safe muzzle control at all times.
- Avoid firing at surfaces which could result in ricochet, such as water, rocks or any other hard or flat surfaces.
- Avoid breathing fumes during the firing



5- PROTECTIVE EQUIPMENT – SPECIALLY FOR FIRING IN INDOOR RANGES

- Eyes** : Recommendable approved protective glasses.
- Gloves** : Not generally required
- Respirators** : Use an approved lead dust/fume respirator while cleaning range facilities.
- Ears** : Hearing protection recommended during shooting.
- Ventilation** : Use in well ventilated area.
Indoor shooting ranges must be provided with mechanical exhaust ventilation to keep air contaminants concentrations below TLV's.

6- FIRE FIGHTING & EXPLOSION DATA

- Flash Point** : Not Applicable
- Auto Ignition Temperature** : Not Applicable
- Classification (OSHA):** : Explosive
- Upper Explosive Limits (%)** : Not Applicable
- Lower Explosive Limits (%)** : Not Applicable
- Fire and Explosion Hazards** : Cartridges may ignite if heated above 250°F (120°C). Unconfined ignited cartridges can produce low velocity metallic fragments which may cause eye injury or superficial skin wounds if unprotected by standard fire fighter turnout gear.
- Extinguishing Média** : Water deluge.
- Special Fire Hazard and Fighting Procedures** : Wear full fire fighter protective gear, including face shield.
Flood with water to fight fire and to cool the cartridges.

7- HEALTH HAZARD DATA

7.1- Exposure and Effects - Inhalation

- 7.1.1- Acute:** Inhalation of dust or fumes may produce mild throat and eye irritation.
- 7.1.2- Chronic:** Prolonged, repeated overexposure to fired cartridge dust, may result in elevated blood lead levels, affects nervous, urinary and reproductive systems. Symptoms of chronic overexposure to lead may include weight loss, headaches, depressed hemoglobin, and fatigue.



7.1.3- First aid: Remove person to fresh air.

If breathing has stopped, administer artificial respiration. If chronic symptoms appear, contact a physician.

7.2- Exposure and Effects - Ingestion

7.2.1- Acute: Acute accidental ingestion of lead may occur from poor personal hygiene associated with the handling of lead materials. Acute ingestion may result in abdominal cramps, fatigue, constipation and disturbance of sleep.

7.2.2- Chronic: Chronic overexposure may result in depressed hemoglobin levels, headaches, fatigue and weight loss with elevated blood lead levels.

7.2.3- First Aid: Call a physician.

7.3- Exposure and Effects - Eyes

7.3.1- Acute: Contact with large volume of fumes may cause minor eyes irritation.

7.3.2- Chronic: None reported.

7.3.3- First Aid: Remove person to fresh air and wash with water. If an irritation develops contact a physician.

7.4- Exposure and Effects - Skin

7.4.1- Acute: Contact of skin with cartridge presents no health hazard.

7.4.2 Chronic: Contact of skin with cartridge presents no health hazard.

7.4.3- First Aid: Wash hands with soap and water before eating or smoking.

7.5- Exposure and Effects - Carcinogenicity

Contents not known to be carcinogenic.

7.6- Exposure and Effects - Comments

Care should be taken in the cleaning of range facilities to minimize the exposure potential to lead. Persons engaged in these activities should wear protective clothing with an appropriate respirator.



8- REACTIVITY AND POLYMERIZATION

Stability	:	Stable under normal use conditions.
Conditions to Avoid-Stability	:	Individual cartridge may ignite if the primer is struck or the cartridge is exposed to excess heat. May ignite if heated above 250°F (120°C).
Incompatible Materials	:	Acids, Alkalies, Ammonia and other corrosive materials.
Hazardous Decomposition Products	:	When ammunition is fired oxides of aluminum, nitrogen and carbon are produced. Lead dust may be produced by the lead core exposition after the bullet hitting in hard surfaces.
Polymerization	:	Will not occur.
Conditions to Avoid	:	Listed previously.

9- SPILLS, LEAKS, HANDLING AND DISPOSAL OF SCRAPS

- Spills and Leaks: Avoid conditions detailed in section 8. If container should rupture, place all loose cartridges from broken shipping cases into a sturdy container; secure container carefully.
- Handling and Disposal of Scraps: Scraps ammunition (misfires, deformed cartridges,, etc) should be stored in a container of water to which detergent has been added as a wetting agent. The only proper disposal method for scrap ammunition is to incinerate is small amounts in a burner specifically designed for destroying hazardous ammunition.
- After ammunition has been rendered inert by proper incineration, the remaining scrap should be disposed off in accordance with local, state and federal codes which govern disposal



10- SHIPPING DATA

10.1- IATA – VIA AIR

Proper Shipping Name : Cartridges, Small Arms
UN N° : 0012
Class : 1.4S
Subsidiary Risk : -
Hazard Label : Explosive 1.4S
Packing Group : II
Passenger Aircraft : Pkg Instr. -130
Max Net Qty/Pkge - 25Kg
Cargo Aircraft : Pkg Instr. -130
Max Net Qty/Pkge - 100Kg

10.2- IMDG – VIA SEA

Proper Shipping Name : Cartridges, Small Arms
UN N° : 0012
Class : 1.4S
Subsidiary Risk : -
Hazard Label : Explosive 1.4S
Packing Group : II
EmS N° : 1-08
MFAG Table N° : Subsection 7.3.

10.3- VIA LAMD

Proper Shipping Name : Cartridges, Small Arms
UN N° : 0012
Class : 1.4S
Subsidiary Risk : -
Hazard Label : Explosive 1.4S
Packing Group : II
Packing Instructions : P130



11- NOTES

- 11.1-** All hazards listed are not expected to be present unless the product is fired, or otherwise discharged so that dust or fumes are created. Normal handling and shipping should not cause exposure to these hazards. This should also apply to the personal protective equipment.
- 11.2-** The conditions or methods of handling, storage or use and disposal of the product are beyond our control and may be beyond our knowledge.
For these reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.
- 11.3-** The statements and recommendations made in this MSD do not supersede local, state, or Federal regulations. Proper authorities should be consulted on regulations for storage, handling or transportation and use of Small Arms Ammunition Primers, in each specific community.

----- x -----