Product name: **Small Arms Ammunition Centerfire Pistol & Revolver and Rifle Cartridges – All Calibers up to .500**

1- IDENTIFICATION

1.1 Product Identification

Product Name : Centerfire Pistol & Revolver and Rifle Cartridges – All Calibers up to .500

1.2- Product Use : Centerfire Pistols, Revolvers and Rifle up to caliber .500

1.3 Manufacturer

CBC - COMPANHIA BRASILEIRA DE CARTUCHOS

Av. Humberto de Campos, 3220

09426-900 – Ribeirão Pires - SP – Brazil

Phone : 55-11-2139-8200

Fax : 55-11-2139-8346

Emergency Response Number 24 Hours: 55-11-2139-8450

2- HAZARD IDENTIFICATION

- Classification and labeling: Hazard Class: Explosive

Hazard category: Division 1.4

Appropriate elements of the labeling:	
Pictograms	
Signal word	**WARNING**
Hazard statements	H204 - Fire or projection hazard
Precautionary statements	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking P240 – Ground and bond container and receiving equipment P250 - Do not subject to grinding, mechanical shock and friction. P280 - Wear protective gloves/protective clothing/eye protection/face protection.
Response precautionary statements	P370 + P380 - In case of fire: Evacuate area
Storage precautionary statements	P401 - Store in its original packaging.
Disposal precautionary statements	P501 - Disposal of cartridges in a container, containing water, preferably with detergent, which works as wetting agent.

3 - COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT	CAS Nº EC Nº	CONCENTRATION RANGE IN CARTRIDGE
Copper	7440-50-8 231-159-6	12 - 65
Zinc	7440-66-6 231-175-3	5 - 28
Lead	231-100-4 7439-92-1	15 - 77

HAZARDOUS COMPONENT	CAS Nº EC Nº	CONCENTRATION RANGE IN CARTRIDGE
Antimony	231-146-5 7440-36-0	0.1 – 0.4
Nitrocellulose	603-037-01-3 9004- 70-0	2 - 11
Nitroglycerine	55-63-0 200-240-8	0.01 - 2
Graphite powder	231-955-3 7782-42-5	0.01 - 0.1
Barium Peroxide	215-128-4 1304-29-6	0.01 - 0.6
Diphenylamine	204-539-4 122-39-4	0.1 – 0.2
Dinitrotoluene	246-836-1 25321-14-6	1 - 2
Tributyl citrate	201-071-2 77-94-1	0.05 – 2.5
Calcium Carbonate	207-439-9 471-34-1	0.01 – 0.1
Calcium Resinate	232-694-8 9007-13-0	0.03 – 0.1
Sodium Sulphate	231-820-9 7757-82-6	<0.01 – 0.1
Sodium Carbonate	497-19-8 207-838-8	<0.01 – 0.1
Potassium Nitrate	231-818-8 7757-79-1	<0.01 – 0.1
Centralite I (1,3 Diethhyl-1-3 Diphenyl urea)	201-645-2 85-98-3	0.06 - 0.2
Potassium Sulphate	231-915-5 7778-80-5	0.03 - 0.1
Barium Nitrate	233-020-5 10022-31-8	0.04 – 1.3
Aluminium Powder	231-072-3 7429-90-5	0.01 – 0.02
Antimony Sulfide	215-713-4 1345-04-6	0.02 – 0.04
Lead Styphnate	239-290-0 15245-44-0	0.02 - 0.8
Tetracene	NAD 109-27-3	0.01 – 0.04
Strontium Peroxide	215-224-6 1314-18-7	0.02 – 0.3
Tin Dioxide	242-159-0 18282-10-5	<0.01 – 0.02

HAZARDOUS COMPONENT	CAS Nº EC Nº	CONCENTRATION RANGE IN CARTRIDGE
Polyurethane Resin	202-966-0 101-68-8	< 0.01 – 0.1
Polyurethane Hardner	500-030-9 9051-49-4	< 0.01 – 0.1
Magnesium - powder	231-104-6 7439-95-1	0.1 – 1
Polyvinyl Chloride	200-831-0 9002-86-2	0.1 – 0.6
Gum Arabic	232-519-5 9000-01-5	<0.01 – 0.02
Dibutylphtalate	84-74-2 201-557-4	0.6 – 1.4
Diisobutylphtalate	84-69-5 201-553-2	0.1 – 0.6
Iron Oxide	215-168-2 1309-37-1	<0.01 – 0.02
Diazodinitrophenol	225-134-9 4682-03-5	<0.01 – 0.05
Nitrofilm (Closure disc)	603-037-00-6 9004-70-0	<0.01 – 0.02
Glass - Crushed	NAD	<0.01 – 0.02
NAD - Not Avaiable Data		

4 FIRST-AID MEASURES

4.1 Inhalation: Remove patient to fresh air. If the patient has stopped breathing, give artificial respiration. If symptoms of chronic effects are noticed, Contact a doctor.

4.2 Ingestion: Call a physician.

4.3 Eyes: Remove patient to fresh air. If eye irritation, contact a physician.

4.4 Skin: Wash hands with soap and water before eating or smoking.

4.5 Most important symptoms and effects, both acute and delayed

4.5.1 Exposure and Effects - Inhalation

4.5.1.1- Acute: Inhalation of dust or fumes may produce mild throat and eye irritation.

4.5.1.2- Chronic: Prolonged, repeated overexposure to fired cartridge dust or fumes, (of fired primer mixture) may result in elevated blood lead levels, affects nervous, urinary and reproductive systems. Symptoms of chronic overexposure to lead (of fired primer mixture) may include weight loss, headaches, depressed hemoglobin, and fatigue.

4.5.1.3- First aid: Remove person to fresh air.

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

4.5.2- Exposure and Effects - Ingestion

4.5.2.1- Acute: Not defined.

4.5.2.2- Chronic: Not defined.

4.5.2.3- First Aid: Not defined.

4.5.3- Exposure and Effects - Eyes

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

4.5.3.2- Chronic: None reported.

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

4.5.4- Exposure and Effects - Skin

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

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

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

4.6 Notes to physician:

Avoid contact with the product while helping the victim. Keep victim warm and at rest. Do not offer anything by mouth to an unconscious person.

4.7 Exposure and Effects – Carcinogenicity

Contents not known to be carcinogenic.

4.8 Exposure and Effects - Comments

Lead is a toxic metal, which may be released during firing of modern ammunition. Care should be taken in the cleaning of indoor shooting galleries ranges facilities to minimize the exposure potential to lead dust or fumes. Persons engaged in these activities should wear protective clothing with an appropriate respirator.

4.9 Aggravation of Pre-Existing Health Conditions

Prolonged and repeated overexposure to lead dust or fumes (of fired primer mixture) may aggravate anemia and developmental toxicity to the fetus.

5 FIRE-FIGHTING MEASURES

5.1 Unusual Fire and explosion data

If fire reaches cargo do not fight. Evacuate all person, including emergency responders from the area for 450m (1500mm feet) in all directions.

5.2 Extinguishing Media

Flood area with water to flight fire and cool shells. If no water is available, carbon dioxide, dry chemical or earth be use. If the fire reaches the cargo, withdraw and let fire been.

5.3 Firefighting Procedures

In case of fire, flood area with water and cool the cartridges not reached by the fire. Use normal firefighting equipment. Wear full firefighting protective gear including approved face shield to protect from fragments.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions

Prohibit smoking on the premises.
Evacuate all person from the area for 450m (1500mm feet) in all directions.
Use personal protective equipment as described in Section 8.

6.2 For staff is part of the emergency services

Use standard firefighting equipment. With regard to protection, it must meet the physical characteristics of the product, such as a projection of metallic fragments from the detonation of cartridges and smoke and irritating fumes, why it is advisable to use gas masks.

6.3 Environmental precautions

Not Applicable

6.4 Methods and material for containment and cleaning up

Scrape up spilled material into a suitable container material, which can be plastic, buckets or cans bags. For disposal, proceed according to Section 13 of this SDS.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling:

The centerfire cartridges are not dangerous to handle. However

- Handle with care. Avoid striking the primer of unchambered cartridges or shock in handling, storage or use.

- To avoid serious injury when use centerfire cartridges:
  - Use only firearms in a good condictions and originaly chambered for a particular caliber.
  - If the firearm fail to fire, a delayed firing may occur, or the firearm may fire upon being opened. The following procedures must be complied:
    a- Keep the muzzle of firearm pointed in safe direction.
    b- wait for 30 seconds;
    c- protect yourself and others from expousure to the breech area of firearm;
    d- with muzzle still pointed in a safe direction unload the firearm carefully.
  - Should be sure that the bore of the weapon is free of any foreing matter such as oil, grease, mud, sand. Fire the weapon with any obstruction in the bore may cause the gun barrel to burst, and in personnel injury.
- 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 wich could result in ricochet, such as water, rocks or any other hard or flat surfaces.
- Avoid breathing fumes during the firing
- Wash hands with soap ad water after contact with lead bullets.

7.2 Hygiene measures:

Do not eat, drink or smoke while handling or using cartridges. Wash hands thoroughly after use.

7.3 Storage:

- 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.
- 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.
- The cartridges when stored in it original containers in a cool, dry, well ventilated area away from sources of ignition in conditions
  - temperature: 20-25 ºC (68-77 ºF);
  - Relative Humidity: 65-75%;
  have a shelf life of more 10 (ten) years.

- The cartridges without the original packages and stored at the mentioned conditions and temperature and Relative Humidity, have a shelf life for up to 5 (five) years.

  In no case, the following cartridges will have stored for a long time:
  - those them field storages which have not been checked again;
  - those have been submitted during several weeks to temperatures between + 25 (77º F) and + 45 º C (113ºF).

These cartridges will be specially stored and used within 1(one) year or soon as possible.

- Remove ammunition from service if any of the following conditions have occurred:

  - Prolonged storage at or above 65ºC (150ºF);

  - Evidence of corrosion

  - Physical damage;

  - Exposure to oil or spray type lubricants or in a corrosive atmosphere.

- Avoid prolonged storage in leather cartridges carries or in magazine feeds
- Do not subject to mechanical shock
- Keep out of reach of children
- This product must not be stored with acids, ammonia, strong oxidizers, caustics, corrosive atmosphere, Explosives: Compatibility groups A and L.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1.Ingredients with limit values that require monitoring at the workplace:

Chemical Component	ACGIH TLV/ TWA mg/m3
Copper	0.2 (a) 1.0 (b)
Zinc	NE
Lead	NE
Antimony	NE
Nitrocellulose	NE
Nitroglycerine	0.05 ppm TWA (skin)

Chemical Component	ACGIH TLV/ TWA mg/m3
Graphite powder	2
Barium Peroxide	NE
Diphenylamine	10
Dinitrotoluene	0.2
Tributyl citrate	NE
Calcium Carbonate	NE
Calcium Resinate	Nuisance 15.0
Sodium Sulphate	NE
Sodium Carbonate	NE
Potassium Nitrate	NE
Centralite I (1,3 Diethhyl-1-3 Diphenyl urea)	NE
Potassium Sulphate	NE
Barium Nitrate	0.5
Aluminium Powder	5
Antimony Sulfide	0.5
Lead Styphnate	0.05
Tetracene	NE
Strontium Peroxide	NE
Tin Dioxide	2
Polyurethane Resin	2
Polyurethane Hardner	0.005 ppm
Magnesium - powder	10.0
Polyvinyl Chloride	1
Gum Arabic	NE
Dibutylphtalate	NE

Chemical Component	ACGIH TLV/ TWA mg/m3
Diisobutylphtalate	NE
Iron Oxide	5
Diazodinitrophenol	NE
Nitrofilm (Closure disc)	NE
Glass - Crushed	NE
NE: Not Established. (a) - As fumes (b) - As dusts	

8.2. Engineering Controls

Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation Use hearing protection.

8.3.Personal protective equipment

8.3.1. Eyes / Face Protection:

Recommendable approved protective glasses.

8.3.2. Skin and body Protection:

Not normally required.

8.3.3. Respiratory Protection:

Not normally required. Use of approved respirator is recommended if the concentrations of fumes and/or dust exceed the TLV or PEL.

9- PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Cylindrical brass cartridge case
Odor	: None
Odor Threshold	: Not Applicable
pH	: Not Applicable
Melting point/freezing point	: Not Applicable

Initial boiling point and boiling range	: Not Applicable
Flash point	: Not Applicable
Evaporation rate	: Not Applicable
Flammability (solid, gas)	: Not Applicable
Upper/lower flammability or explosive limits	: Not Applicable
Vapor Pressure	: Not Applicable
Vapor Density	: Not Applicable
Relative density	: Not Applicable
Solubility (ies)	: Insoluble
Partition coefficient: n-octanol/water	: Not Applicable
Auto-ignition temperature	: Not Applicable
Decomposition temperature	: Not Applicable
Viscosity	: Not Applicable

10- STABILITY AND REACTIVITY

10.1 Reactivity

No reactive under normal use conditions.

10.2 Chemical stability

Stable under normal use conditions of temperature and pressure. Not react with water.

10.3 Possibility of hazardous reactions

Individual cartridge may ignite if the primer is struck or the cartridge is exposed to excess heat. May ignite if heated above to 140º C (250ºF).

10.4 Conditions to avoid

Listed previously.

10.5 Incompatible materials

Acids, Alkalies, Ammonia, Strong Oxidizers, Caustics, Explosives: Compatibility Groups A and L.

10.6 Hazardous decomposition products

When ammunition is fired oxides of barium, lead, aluminium, nitrogen and carbon are produced. Lead fumes may also be produced (of fired primer mixture).

11- TOXICOLOGICAL INFORMATION

11.1 *Information on toxicological effects*

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 cartridge is fired.

11.1.1 Acute animal toxicity data:

For Product:		For Components				
		Copper	Lead	Nitrocellulose	Zinc	Nitroglycerin
Oral LD50	Not applicable for product	3.5 mg/kg (mouse intraperitoneal)	No Data	> 5 g/kg (rat)	No Data	105 mg/kg (rat)
Dermal LD50	Not applicable for product	375 mg/kg (rabbit, subcutaneous)	No Data	No Data	No Data	> 280 mg/kg (rabbit)
Inhalation LD50	Not applicable for product. Particles generated from firing may be slightly toxic	No Data	No Data	No Data	No Data	No Data
Irritation	Not a skin or eye irritant as a loaded round	Respiratory irritant	No irritating	No Data	Eye irritant	Mild eye and skin irritant

11.1.2 Skin Corrosion/irritation

Contact of skin with cartridge presents no health hazard.

11.1.3 Serious eye damage/eye irritation

Contact with large volume of fumes may cause minor eyes irritation.

11.1.4 Respiratory or skin sensitization

Effects of respiratory or skin sensitization are not expected.

11.1.5 Germ cell mutagenicity

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

11.1.6 Carcinogenicity

The International Agency for Research on Cancer (IARC) lists lead as possibly carcinogenic to humans, group 2B.

11.1.7 Reproductive toxicity

This product is not known or reported to cause reproductive or developmental effects. Lead (fumes of fired primer mixture) has been shown to affect fetal development including birth defects and reduce male reproductive function in laboratory animals.

11.1.8 Specific target organ toxicity - single exposure

No data available.

11.1.9 Specific target organ toxicity - repeated exposure

No data available.

11.1.10 Aspiration hazard

No data available.

11.1.11 Additional Information

None known or reported.

12- ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

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

Copper: The toxicity of the copper to aquatic organisms varies not only with the species, but also with the physical and chemical characteristics of the water, such as the temperature, hardness, turbidity and carbon dioxide contents. Have been found for various investigators that concentration of the copper varying from 0,1 to 1,0 mg/l to be not toxic for most fishes. Concentrations of 0,015 to 3,0 mg/l have been reported as toxic, particularly in soft water to many kinds of fishes, crustaces, mollusks, insects and plankton.

Lead: LC50 (48h) to bluegill (lepomis macrochirus) is reported to be 2- 5 mg/l. Lead toxic for water fowl.

Zinc: Concentrations of zinc greater than 0,13 mg/l have been reported as lethal to the fishes. The presence of copper appears to have a synergetic effect on the toxicity of zinc towards the fishes.

Nitrocellulose: LC50 > 1000 mg/l – Toxic for fishes, algas and invertebrates.

Nitroglycerine: For fishes, 96 hour LC50 = 1228 mg/l (static)

12.2Mobility:

Dissolved lead from degraded bullets may migrate through soil.

12.3 Persistence / Degrability:

Not biodegradable bullets may fragment and decompose in soil leading to accumulation of lead.

12.4 Bioaccumulation:

No data. No reporting is required if diameter of metal is equal or exceeds 100 micrometers (0.004 inches).

12.5 Other adverse effects:

No data available.

13- DISPOSAL CONSIDERATIONS

13.1 Product

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 of in accordance with local, state and federal codes which govern disposal.

13.2 Packing:

Empty containers of cartridges (drawer, external box) must be destroyed and sent to collection.

13.3 Other information:

The user of this material has the responsibility to disposed the unused material, residues and containers in compliance with local, state and federal laws and regulations regarding treatment storage and non hazardous material.

14- TRANSPORT INFORMATION

14.1 IATA – VIA AIR

Proper Shipping Name	:	Cartridges, Small Arms
UN Nº	:	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

14.2 IMDG – VIA SEA

Proper Shipping Name	:	Cartridges, Small Arms
UN Nº	:	0012
Class	:	1.4S
Subsidiary Risk	:	-
Hazard Label	:	Explosive 1.4S
Packing Group	:	II
Packing Instructions	:	P130
EmS Nº	:	F-B, S-X
MFAG Table Nº	:	See IMO-MFAG
Stowage Segregation	:	Category 05

14.3 VIA LAND

Proper Shipping Name	:	Cartridges, Small Arms
UN Nº	:	0012
Class	:	1.4S
Subsidiary Risk	:	-
Hazard Label	:	Explosive 1.4S
Packing Group	:	II
Packing Instructions	:	P130

14.4 Special precautions for user

No data available.

15- REGULATORY INFORMATION

This Material Safety Data Sheet has been prepared in Compliance with:

- REACh regulation: Regulation (EC) Nº 1907/2006 of the European Parliament of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals, as amended
- ST/SG/AC.10/1/Rev. 18th – Recomendations on the Transport of Dangerous Goods – Model Regulations
- IATA – "*Internacional Air Transport Association*" - Dangerous Goods Regulations – 55th Edition – 2014
- IMO – "*Internacional Maritime Organization*". Inernational Maritime Dangerous Goods Code (IMDG CODE) – 2012 Edition
- ICAO – "*International Civil Aviation Organization"* – Doc 9284-NA/905
- Ficha de Informações de Segurança de Produtos Químicos - FISPQ (Safety Data Sheet for Chemical Products) – NBR 14725 – of August 2012 – Associação Brasileira de Normas Técnicas
- ADR- *"Accord européen relatif au transport international des marchandises Dangereuses par Route"* – 2013 Edition

This SDS is applicable only to the products identified herein and only when used properly

16- OTHER INFORMATION

16.1 Information contained in this SDS are based on the present state of our knowledge and experience and are intended to describe our product with respect to possible safety demands. The information's are not be considered as a warranty of quality specification.
Eventual risks could occur by using the product for any application for which it has not been designed.

16.2 The user of the product must decide what measures are necessary to safety use of the product, either alone or combinations with other products and determine its environmental regulatory compliance obligations under any applicable Federal, State or Local laws and regulations.

16.3 The user is responsible to pass to all the users and technicians the suitable safety data and warnings concerning the risks mentioned in all documentation about the use of the product.

16.4 The user is not exonerate to check if other obligations have to be implemented due to inner land regulations or regulations inside his company concerning detention and manipulation of the product for which he is solely responsible.

16.5 The conditions or methods of handling, storage or use and disposal of the product are beyond CBC´s control and may be beyond CBC´s knowledge.
For these reasons, CBC does not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of in any way connected with the handling, storage, use or disposal of the product.

16.6 The Statements and recommendations contained in this SDS do not supersede local, state or federal lass or Regulations. Proper authorities should be consulted on laws and regulation in storage, handling or transportation and use of Powder Smokeless- Double Base in each specific community.

16.7 Abbreviations and Definitions

ACGIH	American Conference of Governmental Industrial Hygienists
CAS Nº	Chemical Abstracts Service Numbers
EMS	Emergency Schedules
HMIS	Hazardous Material Information System
LC_{50}	Lethal Concentration 50 percent kill
LD_{50}	Lethal Dose 50 percent Kill
LEL	Lower Explosive Limit
MFAG	Medical First Aid Guide
NA	Not Applied
NE	Not Established.
ND or NS	Not Defined or Not Specified
NFPA	National Fire Protection Association
OSHA	Occupational Safety Health Administration
PEL	Permissible Exposure Level
ppm	Parts per million
REACH	Registration, Evaluation, Authorization and Restriction of Chemical
STEL	Short Term Exposure Limit
TDM	Toxic Dose Level
TLV	Threshold Limit Value
TWA	Time Weighed Average
UEL	Upper Explosive Limit
UNO	United Nations

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