BROWNING AMMUNITION

SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Standard JIS Z 7250:2000, and EU REACH Regulations

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **CARTRIDGES – CENTERFIRE**

CAS Number: Mixture – Metal Alloy

Synonyms: Centerfire Rifle Brands: BXR Rapid Expansion, BXC Controlled Expansion, BXV Varmint Expansion

Centerfire Rifle Bullet Names: Matrix Tip, Terminal Tip

Centerfire Rifle Calibers: 243 WIN, 30-30 WIN, 270 WIN, 223 Rem, 270 WSM, 7mm Rem Mag, 308 WIN, 30-06 SPRG, 300 WIN Mag, 300 WSM, 338 Lapua, 6.5 Creedmoor, 6.5x55mm, 7x64mm, 8x57mm, 9.3x62mm, 9.3x74mm R, 22 Hornet, 22-250 Remington, 204 Ruger, 7mm-08

Centerfire Pistol/Revolver Brands: BXP Personal Defense, BPT Performance Target

Centerfire Pistol/Revolver Bullet Names: X Point, Full Metal Jacket

Centerfire Pistol/Revolver Calibers: 380 Auto, 9mm Luger, 40 S&W, 45 Automatic, 25 Automatic, 32 Automatic, 38 Special

Product Use: Centerfire Rifle and Pistol/Revolver Loaded Ammunition

U.N. Number: UN 0012

U.N. Dangerous Goods Class Explosive, 1.4S

Manufacturer: Olin Corporation d/b/a Browning Ammunition

Manufacturers' Address: PO Box 699, Arnold, MO 63010-0699 www.browningammo.com

Emergency Telephone Number: US/Canada: 1-800-424-9300
Outside US/Canada: 703-527-3887

SDS Control Group: 636-548-7200 (Technical Information Only)

Olin SDS No.: 10050.0001 **Issue Date:** 12/01/2015

Revision Date: 1/20/2017

Revision No.: 2

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: EXPLOSIVE. KEEP AWAY FROM HEAT. DO NOT SUBJECT TO MECHANICAL SHOCK. PARTICLES FROM FIRING MAY BE HARMFUL IF INHALED. DO NOT TAKE INTERNALLY.

US DOT SYMBOLS

CANADA (WHMIS) SYMBOLS

This Product is not subject to WHMIS

GHS HAZARD SYMBOLS

Class 6 Explosive

GHS Classifications:
Explosive Division 1.4
STOT RE Category 1
Reproductive Toxicity Category 1A
Aquatic Environment, Chronic II

Signal Word:
Danger

Hazard Statements :
H204: Fire or projection hazard
H372: Causes damage to nervous system, kidney, and hematopoietic system through prolonged or repeated exposure
H360: May damage fertility or the unborn child
H411: Toxic to aquatic life with long lasting effects

Target organs:
Nervous, renal and hematopoietic systems

Precautionary Statements:
P102: Keep out of reach of children
P210: Keep away from heat/sparks/open flame/hot surfaces
P250: Do not subject to shock/friction
P260: Do not breathe fumes
P264: Wash hands thoroughly after handling
P270: Do not eat, drink or smoke when using this product
P271: Use only outdoors or in a well-ventilated area
P273: Avoid release to the environment
P280: Wear /protective clothing/eye protection/hearing protection
P370+P380: In case of fire: Evacuate area
P374: Fight fire with normal precautions from a reasonable distance
P410: Store in accordance with local regulations
P501: Dispose of contents in accordance with local regulations

GHS Pictograms:
Explosive; Pictogram: exploding bomb
Specific Target Organ Toxicity; Pictogram Code: GHS08
Environment; Pictogram Code: GHS09

EU Classifications:

Hazard Symbols	E, T, N
Risk Phrases	R2: Risk of explosion by shock, friction, fire or other sources of ignition R48: Danger of serious damage to health by prolonged exposure R60: May impair fertility R63: Possible risk of harm to the unborn child R51/53: Toxic to aquatic organisms and many cause long-term adverse effects in the aquatic environment
Safety Phrases	S2: Keep out of reach of children S15: Keep away from heat S20/21: When using do not eat, drink or smoke S23: Do not breathe fumes S39: Wear eye/face protection S43: In case of fire, use Class A equipment S51: Use only in well-ventilated areas S61: Avoid release to the environment

Health Hazards or Risks From Exposure

This product is composed of a finished metal alloy cartridge which contains the various components completely sealed within. Therefore, under normal handling of this product, no exposure to any harmful materials will occur. When the ammunition is fired, a small amount of particles may be generated which may be slightly irritating to the eyes and the respiratory tract. The particles may contain trace amounts of these harmful substances:

Lead: Ingestion of large amounts of lead can cause abdominal pain, constipation, cramps, nausea and/or vomiting. Chronic exposure to lead can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage in humans including changes in cognitive function.
Nitroglycerin: Will produce dilation of blood vessels and drop in blood pressure which may affect the heart. It has also been shown to cause methemoglobinemia (cyanosis).
Copper: Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and stomach pain.

It is unlikely that the amount of particles that someone would be exposed to from firing a loaded round would be sufficient to cause any of these effects.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% By Weight	CAS Number	EINECS/ ELINCS #
Lead	0.5 - 60	7439-92-1	231-100-4
Copper	25 - 60	7440-50-8	231-159-6
Zinc	4 - 20	7440-66-6	231-175-3
Nitrocellulose	10 - 20	9004-70-0	Not listed
Nitroglycerin	1 - 2	55-63-0	200-240-8
Lead Styphnate	0-1	15245-44-0	239-290-0

4. FIRST AID MEASURES

Eye Contact:	Immediately flush out fume or particles with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician at once.
Skin Contact:	Wash skin with plenty of soap and water.
Inhalation:	If symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention.
Ingestion:	If ingested, immediately call a physician.

Medical Conditions Aggravated By Exposure:
There are no medical conditions known to be aggravated by exposure to this product in its solid form. Exposure to lead can aggravate anemia, cardiovascular and respiratory disease.

Recommendations To Physcians:
Remove from exposure, if possible, and treat symptoms

5. FIRE FIGHTING MEASURES

PROPERTY	*VALUE*	*PROPERTY*	*VALUE*
Explosive	Yes	Flammable	Not applicable
Combustible	Not applicable	Pyrophoric	No
Flash Point (°C):	Not applicable	Burning Rate of Material:	Not applicable
Lower Explosive Limit:	Not applicable	Autoignition Temp.:	No data
Upper Explosive Limit:	Not applicable	Flammability Classification: (defined by 29 CFR 1910.1200)	Explosive

Unusal Fire and Explosion Hazards: Possible projection hazard.

Extinguishing Media: Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used.

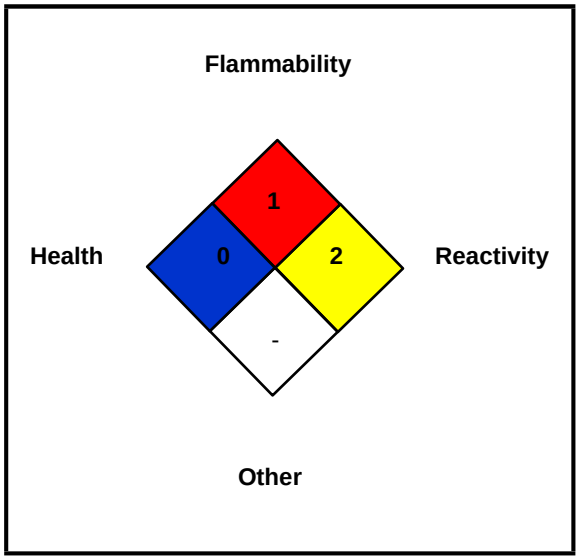
Special Firefighting Procedures: Do not fight fire when fire reaches cargo. Cargo may explode.

Firefighters must wear self-contained breathing apparatus (SCBA) and full protective equipment. Structural firefighters' protective clothing will only provide limited protection.

Isolate materials not yet involved in the fire. Move containers from fire area if possible; otherwise, cool with carefully applied water spray.

Prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas, if practical.

NFPA RATING SYSTEM



HMIS RATING SYSTEM

HEALTH HAZARD (BLUE)	**0***
FLAMMABILITY HAZARD (RED)	**1**
PHYSICAL HAZARD (YELLOW)	**2**

PROTECTIVE EQUIPMENT			
EYES	PPE CODE	RESPIRATORY	HEARING
	A	See Sect 8	See Sect 8

Hazard Scale: **0** = Minimal **1** = Slight **2** = Moderate **3** = Serious **4** = Severe * = Chronic hazard

6. ACCIDENTAL RELEASE MEASURES

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

Spill Response: A spill of this material will normally not require emergency response team capabilities. If, however, a large spill occurs, call 1-888-289-1911 for technical assistance.

Accidental Release Procedures: Spills of this material should be handled carefully. Do not subject materials to mechanical shock. Collect material and place in a designated, labeled waste container. See Section 13 for waste disposal.

7. HANDLING AND STORAGE

Precautions for Safe Handling: Use appropriate personal protective equipment (see Section 8). Workers should wash thoroughly after handling. Eating, drinking and smoking should be prohibited in areas where this material is handled and stored.

Conditions for Safe Storage: Store in accordance with local regulations. Store in original containers in a cool, dry location away from Acids, Class A & B explosives, strong oxidizers, and caustics. Avoid mechanical impact or shock and electrical discharge.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

CAS #	*CHEMICAL NAME*	*ACGIH TLV*	*OSHA PEL*	*INTERNATIONAL OELS*
7440-50-8	Copper	0.2 mg/m^3 (fume), 1 mg/m^3 (dusts and mists)	0.1 mg/m^3 (fume) 1 mg/m^3 (dusts and mists)	Austria, Belgium, Canada: 0.2 mg/m^3 (fumes), 1 mg/m^3 (dusts) Denmark: 1.0 mg/m^3 (dust and powder) Germany (MAK): 0.1 mg/m^3 (fume), 1 mg/m^3 (dusts and mists)
7439-92-1	Lead	0.05 mg/m^3	0.05 mg/m^3	Austria, Denmark, Germany, Sweden, Switzerland: 0.1 mg/m^3 Norway, Poland: 0.05 mg/m^3
7440-66-6	Zinc	None established	None established	None established
9004-70-0	Nitrocellulose	None established	None established	None established
55-63-0	Nitroglycerin	0.05 ppm (0.46 mg/m^3) Skin	Ceiling – 0.2 ppm (2 mg/m^3) Skin	Denmark: 0.02 ppm (0.2 mg/m^3) Norway, Sweden: 0.03 ppm (0.3 mg/m^3) Austria, Belgium, Germany, The Netherlands, Poland, Switzerland: 0.05 ppm (0.47 mg/m^3), skin Finland, France: 0.1 ppm (0.9 mg/m^3), skin U.K.: 0.2 ppm (2 mg/m^3), skin
55-63-0	Lead Styphnate	None Established	None Established	None Established

Engineering Controls: Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation.

Respiratory Protection: Not normally needed. Maintain airborne contaminant concentrations below guidelines listed above. Use an appropriate approved air-purifying respirator equipped with HEPA cartridges/canisters where there is the potential for exceeding established occupational exposure limits.

Eye/Face Protection: Use safety glasses.

Hand Protection: Not normally needed

Skin Protection: Not normally needed.

Hearing Protection: Not normally needed. During firing use hearing protection.

General Hygiene: Do not eat, drink, or smoke while using this product. Wash hands thoroughly after use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	*VALUE*	*PROPERTY*	*VALUE*
Appearance:	Cylindrical brass cartridge	*Physical State:*	Solid
Odor:	None	*Odor Threshold:*	None
Boiling Point (°F):	Not applicable	*Melting point:*	Not applicable
Vapor Pressure (mm Hg):	Not applicable	*Freezing point:*	Not applicable

PROPERTY	*VALUE*	*PROPERTY*	*VALUE*
Vapor Density(air = 1):	Not applicable	*Bulk Density*	Not applicable
Specific gravity (g/cc):	Not applicable	*Viscosity (cps):*	Not applicable
pH:	Not applicable	*Decomposition Temperature:*	Not applicable
Solubility in Water (20 ℃):	Insoluble	*Evaporation Rate:*	Not applicable
Volatiles, Percent by volume:	Not applicable	*Octanol/water partition coefficient:*	Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressure.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur

Incompatible Materials: Acids, Class A & B explosives, strong oxidizers, and caustics

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, lead oxides, carbon dioxide, lead dust/fume

Conditions to Avoid: Contact with incompatible materials. Physical damage to containers; cartridges may detonate if case is punctured.

11. TOXICOLOGICAL INFORMATION

Potential Routes of Entry: Inhalation, Skin, and by Ingestion.

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.

Effects Of Acute Exposure:

PRODUCT		COMPONENTS				
		Copper	Lead	Nitrocellulose	Zinc	Nitroglycerin
Inhalation LC_{50}	Particles generated from firing may be slightly toxic	No data	No data	No data	No data	No data
Skin Contact LD_{50}	Skin absorption unlikely	375 mg/kg (rabbit, subcutaneous)	No data	No data	No data	> 280 mg/kg (rabbit)
Ingestion LD_{50}	Ingestion unlikely	3.5 mg/kg (mouse, intraperitoneal)	No data	> 5 g/kg (rat)	No data	105 mg/kg (rat)
Irritation	Particles generated from firing may be slightly irritating to the eyes	Respiratory irritant	Not irritating	No data	Eye irritant	Mild eye and skin irritant
Sensitization	Sensitization to this Product has not been reported	No data	No data	No data	No data	No data

Other Adverse Effects:

Target Organ Toxicity: No reported target organ toxicity from this product. Lead has caused nervous system, kidney and hematopoietic system damage in humans and laboratory animals.

Reproductive Toxicity: This product is not known or reported to cause reproductive effects. Lead has been shown to reduce male reproductive function in humans and laboratory animals.

Teratogenicity (Birth Defects): This product is not known or reported to cause developmental toxicity. Lead has been shown to affect fetal development including birth defects.

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

Carcinogenicity: This product is not listed as a carcinogen by OSHA, NTP or IARC. IARC lists lead as possibly carcinogenic to humans, group 2B.

12. ECOLOGICAL INFORMATION

Environmental Effects:

PRODUCT: Product has not been tested for environmental properties. Lead shot has been shown to be toxic to aquatic species.

COMPONENTS:

Copper:	Copper concentrations from 0.1 to 1.0 mg/l have been found to be not toxic for most fish. However, concentrations of 0.015 to 3.0 mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustacea, mollusks, insects, and plankton.
Lead:	LC 50 (48 hrs.) to bluegill is reported to be 2-5 mg/l. Lead is toxic to waterfowl.
Nitrocellulose:	LC_{50} > 1000 mg/l to fish, invertebrates, and algae.
Nitroglycerin:	LC_{50} = 1.228 mg/l to Bluegill, (96 hour, static)
Zinc:	The following concentrations of zinc have been reported as lethal to fish: 0.13 mg/l, for 12 – 24 hours to Rainbow trout fingerlings; 1.9 – 3.6 mg/l, 6 hr TLM (soft water, 30°C) to Bluegill Sunfish; 4 mg/l, 3 days (hard water) to Rainbow trout; 1 mg/l, 24 hours (soft water) to Sticklebacks. The presence of copper appears to have a synergistic effect on the toxicity of zinc towards fish.

Environmental Fate:

MOBILITY:	Dissolved lead from degraded bullets may migrate through soil.
PERSISTANCE/DEGRADABILITY:	Not biodegradable. Bullets may fragment and decompose in soil leading to accumulation of lead.
BIOACCUMULATION:	No data

13. DISPOSAL CONSIDERATIONS

Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding the treatment, storage and disposal for hazardous and nonhazardous wastes.

14. TRANSPORT INFORMATION

Regulatory Information for US DOT, IATA, IMO, and ADR:

Proper Shipping Name:	Cartridges, small arms (other than blanks)
Hazard Class Number and Description:	Explosive 1.4S
UN Identification Number:	UN 0012
Packing Group:	PGII
DOT Label(s) Required:	Label Not Required for ground shipment.
Marine Pollutant:	None of the ingredients are classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B)

Additional Information:

North American Emergency Response Guidebook Number: 114 Most Current Version is 2012

U.S. DEPARTMENT OF TRANSPORTATION SHIPPING REGULATIONS: This product is classified as dangerous goods under 49 CFR 172.101. Note: May be reclassified domestically as an ORM-D or Limited Quantity if packaged in accordance with 49 CFR 173.63.

TRANSPORT CANADA, TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This product is classified as Dangerous Goods (If packaged appropriately this product may ship as a Limited Quantity).

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA): This product is classified as Dangerous Goods.

INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION: This product is classified as Dangerous Goods (If packaged appropriately this product may ship as a Limited Quantity).

EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR): This product is classified by the United Nations Economic Commission for Europe to be dangerous goods. (If packaged appropriately this product may ship as a Limited Quantity).

15. REGULATORY INFORMATION

US FEDERAL

TSCA	The components of this product are listed on the Toxic Substance Control Act inventory.				
CERCLA:	Copper, R.Q.* = 5000 lbs.; Lead, R.Q. = 10 lbs.; Zinc, R.Q. = 1000 lbs.; Nitroglycerin, R.Q. = 10 lbs (No reporting is required if diameter of the pieces of metal is equal to or exceeds 100 micrometers (0.004 inches).				
SARA 313:	Copper, Lead and Lead compounds, Zinc (fume or dust), Nitroglycerin				
SARA 311/312:	*Health*:	Acute – No Chronic - No	*Fire:* No	*Reactivity:* None	*Release of Pressure*: Yes
SARA 302 EHS List:	None of the components of this product are listed.				

*RQ = Reportable Quantity

STATE RIGHT-TO-KNOW STATUS

Component	California	New Jersey	Pennsylvania	Massachusetts	Michigan
Copper	Not listed	X	X	X	X
Lead	X	X	X	X	X
Zinc	Not listed	X	Not listed	X	X
Nitrocellulose	Not listed	X	X	X	Not listed
Nitroglycerin	Not listed	X	X	X	Not listed
Lead Styphnate	X	Not Listed	Not Listed	X	Not Listed

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65)

Warning! This product contains detectable amounts of a chemical known to the State of California to cause cancer and/or birth defects or other reproductive harm.

GHS CLASSIFICATION

Explosive Division 1.4
STOT RE Category 1
Reproductive Toxicity Category 1A
Aquatic Environment, Chronic II

EUROPEAN REGULATIONS

Hazard Classification

Danger Symbols: E, T, N

Risk Phrases: R2, R48, R60, R63, R51/53

Safety Phrases: S2, S15, S20/21, S22, S39, S51, S61

German WGK Classification: Not known.

CANADIAN REGULATIONS

DSL/NDSL Inventory: The components of this product are on the DSL

IDL: Lead, Copper

CEPA PRIORITIES LIST: None of the components of this product are on the CEPA First Priorities Substances List.

WHMIS: This product is not subject to WHMIS. It is regulated as a Class 6 Explosive in Canada.

JAPANESE REGULATIONS

Existing National Inventory of Chemical Substances (ENCS): The components of this product are Listed

Japanese MITI Status: Product components are not listed as Class I or II Specified Chemical Substances

OTHER INTERNATIONAL CHEMICAL INVENTORIES

Swiss Giftliste List of Toxic Substances:	All Components Listed
Australian Inventory (AICS):	All Components Listed
Asia – Pac Inventory:	All Components Listed
Korean Existing Chemicals List (ECL):	All Components Listed
Philippines Inventory of Chemicals (PICCS):	All Components Listed

16. OTHER INFORMATION

REVISIONS:

PREPARED BY: Olin Corporation d/b/a Browning Ammuntion

OTHER: Additional information available from: www.browningammo.com

NOTICE: THE INFORMATION IN THIS SDS 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. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND CURRENT AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS.