



MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00096.0001
Revision No.: 6

Revision Date: 1/1/11
Supercedes: 1/1/10

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: 5.56 mm JACKETED FRANGIBLE BULLET
Chemical Name: Mixture – Metal Alloy
Synonyms: 5.56 mm Jacketed Frangible Projectile
Chemical Family: Metal mixture
Formula: Not applicable - mixture
Product Use/ Description: Centerfire Ammunition Projectile

COMPANY ADDRESS MSDS Control Group
Olin Corporation – Winchester
Division, Inc.
600 Powder Mill Road
East Alton, IL 62024
www.winchester.com
TECHNICAL INFORMATION: 618-258-3507
EMERGENCY TELEPHONE NUMBER: 618-258-2111

2. COMPOSITION / INFORMATION ON INGREDIENTS

Table with 6 columns: CAS Number, Components, % By Weight, EINECS/ ELINCS #, EU Classification Symbol, EU Classification R-Phrase. Rows include Zinc (5%) and Copper (95%).

OSHA REGULATORY STATUS: Dust or fume is an irritant

In solid form, this material is not hazardous. Dust and fumes are hazardous materials.

3. HAZARDS IDENTIFICATION

WARNING!
PARTICLES FROM FIRING MAY BE HARMFUL IF INHALED. DO NOT TAKE INTERNALLY.

HAZARD RATINGS (for dust or fume) Degree of hazard (0 = low, 4 = extreme)
Hazardous Materials Identification System (HMIS) Health: 0 Flammability: 0 Physical Hazard: None
for dust or fume:

National Fire Protection Association (NFPA) Mixture. Not rated.

HUMAN THRESHOLD RESPONSE DATA

Odor Threshold: Unknown
Irritation Threshold: Unknown
Immediately Dangerous to Life or Health (IDLH) Value(s): The IDLH for this product is not known. The IDLH for copper is 100 mg/m³.

POTENTIAL HEALTH EFFECTS

This product is composed of a finished metal alloy solid. Therefore, under normal handling of this product, no exposure to any harmful materials will occur.

When the product 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:

Copper: Inhalation of high concentrations of metallic copper dusts or fumes may cause nasal irritation and/or nausea, vomiting and

stomach pain.

Zinc: High concentrations of metal fumes may cause metal fume fever (Brass Founder's Ague)

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

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** There are no medical conditions known to be aggravated by exposure to this product in its solid form.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Product has not been tested for environmental properties.

**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.

**5. FIRE FIGHTING MEASURES**

PROPERTY	VALUE	PROPERTY	VALUE
Explosive	No	Flammable	No
Combustible	No	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)	Not applicable

- UNUSUAL FIRE AND EXPLOSION HAZARDS:** None
- EXTINGUISHING MEDIA:** Not Applicable - Choose extinguishing media suitable for surrounding materials.
- SPECIAL FIREFIGHTING PROCEDURES:** In case of fire, use normal fire fighting equipment. Response to this material requires the use of a self-contained breathing apparatus (SCBA).

**6. ACCIDENTAL RELEASE MEASURES**

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

This material is heavier than and insoluble in water. Do not place spill materials back in their original containers. Containerize and label all spill materials properly. Decontaminate all clothing and the spill area using soap solution and flush with large amounts of water. Use clean shovel or broom to pick up and place in clean container for disposal.

**7. HANDLING AND STORAGE**

- HANDLING:** No special requirements
- STORAGE:** No special requirements
- Shelf Life Limitations:** Not known
- Incompatible Materials for Packaging:** None known
- Incompatible Materials for Storage or Transport:** Acids and caustics
- CONDITIONS TO AVOID:** None known.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

CAS #	CHEMICAL NAME	ACGIH TLV	OSHA PEL	INTERNATIONAL OELS
7440-50-8	Copper	0.2 mg/m <sup>3</sup> (fume), 1 mg/m <sup>3</sup> (dusts and mists)	0.1 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dusts and mists)	Austria, Belgium, Canada: 0.2 mg/m <sup>3</sup> (fumes), 1 mg/m <sup>3</sup> (dusts) Denmark: 1.0 mg/m <sup>3</sup> (dust and powder) Germany (MAK): 0.1 mg/m <sup>3</sup> (fume), 1 mg/m <sup>3</sup> (dusts and mists)
7440-66-6	Zinc	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. Use hearing protection.

EYE / FACE PROTECTION: Not normally needed.

SKIN PROTECTION: Not normally needed

RESPIRATORY PROTECTION: Respiratory protection not normally needed.

GENERAL HYGIENE: Wash hands thoroughly after use.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

PROPERTY	VALUE	PROPERTY	VALUE
Appearance:	Cylindrical projectile – silver colored if nickel plated, copper colored if copper plated, gray if not plated	Vapor Density (air = 1):	Not applicable
Odor:	None	Boiling Point (°F):	Not applicable
Molecular Weight:	Not applicable - Mixture	Melting point:	Not applicable
Physical State:	Solid	Specific gravity (g/cc):	Not applicable
pH:	Not applicable	Bulk Density:	Not applicable
Vapor Pressure (mm Hg):	Not applicable	Viscosity (cps):	Not applicable
Vapor Density:	Not applicable	Decomposition Temperature:	Not applicable
Solubility in Water (20 °C):	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.

MATERIALS TO AVOID: Acids and caustics

HAZARDOUS DECOMPOSITION PRODUCTS: Metals may liberate hydrogen gas from reaction with acids. Metal oxides

HAZARDOUS POLYMERIZATION: Will not occur.

OTHER: None

**11. TOXICOLOGICAL INFORMATION**

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 projectile is fired.

ACUTE ANIMAL TOXICITY DATA:

For Product:		For Components	
		Copper	Zinc
Oral LD <sub>50</sub>	Not applicable for product	3.5 mg/kg (mouse, intraperitoneal)	No data
Dermal LD <sub>50</sub>	Not applicable for product	375 mg/kg (rabbit, subcutaneous)	No data
Inhalation LC <sub>50</sub>	Not applicable for product. Particles generated from firing may be slightly toxic.	No data	No data
Irritation	Not a skin or eye irritant as a loaded round.	Respiratory irritant	Eye irritant

SUBCHRONIC/ CHRONIC TOXICITY: None known or reported.

CARCINOGENICITY: This product or its components are not classified as carcinogenic by IARC, NTP, OSHA, ACGIH, or EPA.

MUTAGENICITY: This product is not known or reported to be mutagenic.

REPRODUCTIVE, TERATOGENICITY, OR DEVELOPMENTAL EFFECTS: This product is not known or reported to cause reproductive or developmental effects.

NEUROLOGICAL EFFECTS: This product is not known or reported to cause neurological effects

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY: None known or reported.

**12. ECOLOGICAL INFORMATION**

**ECOTOXICITY:**

Copper: The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentration varying from 0.1 to 1.0 mg/l have been found by various investigators 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.

Zinc: The following concentrations of zinc have been reported as lethal to fish:

- Rainbow trout fingerlings: 0.13 mg/l, 12 – 24 hours
- Rainbow trout: 4 mg/l, 72 hours, hard water
- Bluegill sunfish: TLM = 1.9 – 3.6 mg/l, 6 hours, soft water at 30°C
- Threespine stickleback: 1 mg/l, 24 hours, soft water

The presence of copper appears to have a synergistic effect on the toxicity of zinc towards fish

**MOBILITY:** No data  
**PERSISTANCE/DEGRADABILITY:** Not biodegradable.  
**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 treatment, storage and disposal for hazardous and nonhazardous wastes.

**14. TRANSPORT INFORMATION**

	U.S. DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
<i>PROPER SHIPPING NAME:</i>	Not regulated					
<i>HAZARD CLASS:</i>						
<i>UN NO.:</i>						
<i>PACKING GROUP:</i>						
<i>HAZARD LABEL/PLACARD:</i>						
<i>REPORTABLE QUANTITY:</i>						
<i>SPECIAL COMMENTS:</i>						

**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; Zinc, R.Q. = 1000 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, Zinc (fume or dust)					
SARA 313 Hazard Class:	<u>Health:</u>	Acute – No Chronic - No	<u>Fire:</u> No	<u>Reactivity:</u> None	<u>Release of Pressure:</u> Yes	
SARA 302 EHS List:	None of the components of this product are listed.					

RQ = Reportable Quantity

*STATE RIGHT-TO-KNOW STATUS*

Component	CA Prop. 65	New Jersey	Pennsylvania	Massachusetts	Michigan
Copper	Not listed	X	X	X	X
Zinc	Not listed	X	Not listed	X	X

*EUROPEAN REGULATIONS*

This material in its solid form is not required to be labeled under EC regulations.

German WGK Classification: Not known

CANADIAN REGULATIONS

DSL LIST: The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.  
IDL: Copper  
WHMIS: This product is not subject to WHMIS. It is considered to be a manufactured article.

**16. OTHER INFORMATION**

REVISIONS: 7/1/09 – updated Emergency Contact Number and mailing address; 1/1/11 - review

PREPARED BY: Olin Corporation

OTHER: Additional information available from: [www.winchester.com](http://www.winchester.com)

NOTICE: THE INFORMATION IN THIS MSDS 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.