



**POTENTIAL HEALTH EFFECTS**

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:

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

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).

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.

It is unlikely that the amount of particles that someone would be exposed to from firing this product 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. Exposure to lead can aggravate anemia, cardiovascular and respiratory disease.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Product has not been tested for environmental properties. Lead has been shown to be toxic to aquatic species.

**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	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

- UNUSUAL FIRE AND EXPLOSION HAZARDS:** None.
- EXTINGUISHING MEDIA:** Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used.
- SPECIAL FIREFIGHTING PROCEDURES:** In case of fire or if the fire reaches cargo, use normal fire fighting equipment. Turnout gear supplies sufficient fire fighter protection from the explosive characteristics of this product.

**6. ACCIDENTAL RELEASE MEASURES**

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

Spills of this material should be handled carefully. Do not subject materials to mechanical shock. 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.

## 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, Class A & B explosives, strong oxidizers, and caustics  
**CONDITIONS TO AVOID:** None

## 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
9004-70-0	Nitrocellulose	None established	None established	None established
55-63-0	Nitroglycerin	0.05 ppm (0.46 mg/m <sup>3</sup> ) Skin	Ceiling – 0.2 ppm (2 mg/m <sup>3</sup> ) Skin	Denmark: 0.02 ppm (0.2 mg/m <sup>3</sup> ) Norway, Sweden: 0.03 ppm (0.3 mg/m <sup>3</sup> ) Austria, Belgium, Germany, The Netherlands, Poland, Switzerland: 0.05 ppm (0.47 mg/m <sup>3</sup> ), skin Finland, France: 0.1 ppm (0.9 mg/m <sup>3</sup> ), skin U.K.: 0.2 ppm (2 mg/m <sup>3</sup> ), skin
84-74-2	Dibutyl phthalate	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	Belgium, Denmark, France, Netherlands, Switzerland, U.K.: 5 mg/m <sup>3</sup> Sweden: 3 mg/m <sup>3</sup>
15245-44-0	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. Use hearing protection.  
**EYE / FACE PROTECTION:** Use safety glasses.  
**SKIN PROTECTION:** Not normally needed  
**RESPIRATORY PROTECTION:** Respiratory protection not normally needed.  
**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
<i>Appearance:</i>	Cylindrical brass cartridge	<i>Vapor Density (air = 1):</i>	Not applicable
<i>Odor:</i>	None	<i>Boiling Point (°F):</i>	Not applicable
<i>Molecular Weight:</i>	Not applicable - Mixture	<i>Melting point:</i>	Not applicable
<i>Physical State:</i>	Solid	<i>Specific gravity (g/cc):</i>	Not applicable
<i>pH:</i>	Not applicable	<i>Bulk Density:</i>	Not applicable
<i>Vapor Pressure (mm Hg):</i>	Not applicable	<i>Viscosity (cps):</i>	Not applicable
<i>Vapor Density:</i>	Not applicable	<i>Decomposition Temperature:</i>	Not applicable
<i>Solubility in Water (20 °C):</i>	Insoluble	<i>Evaporation Rate:</i>	Not applicable
<i>Volatiles, Percent by volume:</i>	Not applicable	<i>Octanol/water partition coefficient:</i>	Not applicable

## 10. STABILITY AND REACTIVITY

**STABILITY:** Stable under normal temperatures and pressure.  
**MATERIALS TO AVOID:** Acids, Class A & B explosives, strong oxidizers, and caustics  
**HAZARDOUS DECOMPOSITION PRODUCTS:** Nitrogen oxides, carbon monoxide, lead oxides, carbon dioxide, lead dust/fume  
**HAZARDOUS POLYMERIZATION:** Will not occur.  
**OTHER:** Cartridge may detonate if case is punctured or severely damaged.

## 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	Nitrocellulose	Lead styphnate	Nitroglycerin	Zinc	Dibutyl phthalate
Oral LD <sub>50</sub>	Not applicable for product	3.5 mg/kg mouse, intraperitoneal	> 5 g/kg (rat)	No data	105 mg/kg (rat)	No data	8 g/kg (rat)
Dermal LD <sub>50</sub>	Not applicable for product	375 mg/kg (rabbit, subcutaneous)	No data	No data	> 280 mg/kg (rabbit)	No data	> 20 ml/kg (rabbit)
Inhalation LC <sub>50</sub>	Not applicable for product. Particles generated from firing may be slightly toxic.	No data	No data	No data	No data	No data	4250 mg/m <sup>3</sup> (rat)
Irritation	Not a skin or eye irritant as a loaded round.	Respiratory irritant	No data	No data	Mild eye and skin irritant	Eye irritant	No data

### SUBCHRONIC/ CHRONIC TOXICITY: CARCINOGENICITY:

Lead has caused blood, kidney and nervous system damage in laboratory animals. The International Agency for Research on Cancer (IARC) lists lead as possibly carcinogenic to humans, group 2B.

### MUTAGENICITY:

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

### REPRODUCTIVE, TERATOGENICITY, OR DEVELOPMENTAL EFFECTS:

This product is not known or reported to cause reproductive or developmental effects. Lead has been shown to affect fetal development including birth defects and reduce male reproductive function in laboratory animals. Dibutyl phthalate has caused reproductive and developmental effects in animal studies.

### NEUROLOGICAL EFFECTS:

This product is not known or reported to cause neurological effects. Lead has caused peripheral and central nervous system damage and behavioral effects in laboratory animals.

### INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:

None known or reported.

## 12. ECOLOGICAL INFORMATION

**ECOTOXICITY:** No data is available on this product. Individual constituents are as follows:

**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.

**Nitrocellulose:** LC<sub>50</sub> > 1000 mg/l (fish, invertebrates, algae)

**Nitroglycerin:** Bluegill, 96 hour LC<sub>50</sub> = 1.228 mg/l (static)

**Lead:** LC 50 (48 hrs.) to bluegill (*Lepomis macrochirus*) is reported to be 2-5 mg/l. Lead is toxic to waterfowl.

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

Rainbow trout fingerlings: 0.13 mg/l, 12 – 24 hours

Bluegill sunfish: 6 hr TLM = 1.9 – 3.6 mg/l (soft water, 30°C)

Rainbow trout: 4 mg/l (hard water) 3 days

Sticklebacks: 1 mg/l (soft water) 24 hrs

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

### **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 treatment, storage and disposal for hazardous and nonhazardous wastes.

**14. TRANSPORT INFORMATION**

	U.S. DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
PROPER SHIPPING NAME:	Cartridges, small arms, blank					
HAZARD CLASS:	Explosive, 1.4S					
UN NO.:	UN 0014					
PACKING GROUP:	II					
HAZARD LABEL/PLACARD:	<p>Labels not required for ground or water shipment. Placards are not required (see 49 CFR 172.504.)</p> <p>For international air shipments, UN0014 must be labeled 1.4S.</p> <p>For domestic air shipments, UN0014 must be labeled 1.4S unless packaged as ORM-D or Limited Quantity, and then must be marked as ORM-D-Air or as Limited Quantity "Y".</p>					
REPORTABLE QUANTITY:	Not applicable					
SPECIAL COMMENTS:	<p>ORM-D – recognized for domestic transportation only. It will no longer be valid for domestic air effective 1/1/13 and no longer valid for any mode effective 1/1/14.</p> <p>Limited Quantity- recognized for domestic transportation 2012, international transportation 2013.</p> <p>Limited Quantity is not authorized for international air shipment.</p>					

**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.; Nitroglycerin, R.Q. = 10 lbs.; Dibutyl phthalate, R.Q. = 10 lbs.; Lead, 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, Zinc (fume or dust), Nitroglycerin, Dibutyl phthalate, Lead and lead compounds					
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
Nitrocellulose	Not listed	X	X	X	Not listed
Nitroglycerin	Not listed	X	X	X	Not listed
Dibutyl phthalate	Not listed	X	X	X	X
Lead styphnate	X	Not listed	Not listed	X	Not listed

\* "WARNING: This product contains detectable amounts of a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm."

*EUROPEAN REGULATIONS*

Hazard Classification

Danger Symbol: E Explosive

Risk Phrases: R2 Risk of explosion by shock, friction, fire or other sources of ignition

Safety Phrases: S2 Keep out of reach of children.

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, Dibutyl phthalate, Lead

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

#### 16. OTHER INFORMATION

REVISIONS: New International format, toxicology review – 1/1/03; 7/1/09 – changed emergency contact number and mailing address; 1/1/11 - review; 1/1/12 review; 3/20/12 – Updated Emergency Contact Information; 7/26/12 Update to Transportation Information.; 1/1/13 - 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.