



MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00055.0001
Revision No.: 17

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

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: CARTRIDGES FOR POWER DEVICES
Chemical Name: Mixture – Metal Alloy
Synonyms: Rimfire Cartridge for Power Device, 22, 25, 27 Caliber Powertool Round, Power Load, Blank Power Load and/or Booster, Powder Load, Centerfire Powertool Loaded Round 32, 38 Caliber
Chemical Family: Metal mixture
Formula: Not applicable - mixture
Product Use/ Description: Powertool Loaded Round

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

CAS Number	Components	% By Weight	EINECS/ ELINCS #	EU Classification	
				Symbol	R-Phrase
7439-89-6	Iron	0 – 97	231–096-4	None	None
7440-50-8	Copper	50 - 65	231-159-6	None	None
7440-66-6	Zinc	15 - 32	231-175-3	F (as dust or powder)	R 15-17
9004-70-0	Nitrocellulose	7 - 13	Not listed	E*	R 1-3
55-63-0	Nitroglycerin	0.5 - 2	200-240-8	E, T+, N	R 3-26/27/28-33-51-53
84-74-2	Dibutyl phthalate	0.5 - 2	201-55-74	T,N	R61-50-62
15245-44-0	Normal Lead styphnate	0.1 - 1	239-290-0	E, T, N	R61-3-20/22-33-50/53-62

*This material is not listed in Annex 1 of Directive 88/379/EEC. Olin has classified the material according to the conventional method based upon information from similar materials.

OSHA REGULATORY STATUS: Explosive

3. HAZARDS IDENTIFICATION

CAUTION!

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

HAZARD RATINGS (for dust or fume)
Hazardous Materials Identification System (HMIS)

Degree of hazard (0 = low, 4 = extreme)
Health: 0 Flammability: 1

Physical Hazard:
Explosive: 2

National Fire Protection Association (NFPA)

Mixture. Not rated.

HUMAN THRESHOLD RESPONSE DATA

Odor Threshold:
Irritation Threshold:
Immediately Dangerous to Life or Health (IDLH) Value(s):

Unknown
Unknown
The IDLH for this product is not known. The IDLH for dibutyl phthalate is 4000 mg/m³. The IDLH for copper and lead is 100 mg/m³. The IDLH for nitroglycerin is 75 mg/m³.

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 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.

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 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, of if 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: Mechanical impact or shock and electrical discharge. Cartridges placed in a high radio frequency energy field (radar stations).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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)
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
84-74-2	Dibutyl phthalate	5 mg/m ³	5 mg/m ³	Belgium, Denmark, France, Netherlands, Switzerland, U.K.: 5 mg/m ³ Sweden: 3 mg/m ³
15245-44-0	Lead styphnate	None established	None established	None established

ENGINEERING CONTROLS: Use adequate ventilation to maintain airborne contaminants below exposure limits. Local and/or general exhaust may be required.
EYE / FACE PROTECTION: Wear safety glasses with side shields. Use hearing protection.
SKIN PROTECTION: Not required for normal use.
RESPIRATORY PROTECTION: Respiratory protection is required if adequate ventilation not provided and/or airborne concentrations exceeds exposure limits. Use NIOSH/MSHA-approved air purifying respirators.
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 Pthalate
Oral LD ₅₀	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 ₅₀	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 ₅₀	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 ³ (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: LC₅₀ > 1000 mg/l (fish, invertebrates, algae)

Nitroglycerin: Bluegill, 96 hour LC₅₀ = 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, power device					
HAZARD CLASS:	1.4 S					
UN NO.:	UN 0323					
PACKING GROUP:	II					
HAZARD LABEL/PLACARD:	Explosive 1.4 S/1.4 Placard over 1001 lbs. (454 kg)					
REPORTABLE QUANTITY:	Not applicable					
SPECIAL COMMENTS:	LAND - See 49 CFR 173.63 for ORM-D Reclassification AIR - 25 KG. per package passenger aircraft 100 KG. Per package cargo aircraft.					

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.(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
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, changed section 8 exposure control personal protection; 1/1/11 - review

PREPARED BY: Olin Corporation

OTHER: Additional information available from: 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.