



MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00095.0001
Revision No.: 8

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

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: STEEL SHOT TARGET LOAD
Chemical Name: Mixture – Metal Alloy
Synonyms: Reduced Hazard Steel Shot Target Load
Chemical Family: Metal mixture
Formula: Not applicable - mixture
Product Use: 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

Consists of the following components:

- A) Load
B) Plastic Shotshell Case
C) Wad
D) Propellant
E) Primer
F) Buffer (Considered to be a manufactured article)

Table with 6 columns: CAS Number, Components, % By Weight, EINECS/ ELINCS #, EU Classification (Symbol, R-Phrase). Rows include Iron, Copper, Manganese, Nickel, Chromium, Silicon, Polyethylene, Zinc, Mixture, Nitrocellulose, and Nitroglycerin.

\*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: 2

Physical Hazard:  
 Explosive: 2

**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 manganese is 500 mg/m<sup>3</sup>. The IDLH for chromium is 250 mg/m<sup>3</sup>. The IDLH for copper and tin is 100 mg/m<sup>3</sup>. The IDLH for nitroglycerin is 75 mg/m<sup>3</sup>. The IDLH for nickel is 10 mg/m<sup>3</sup>.

**POTENTIAL HEALTH EFFECTS**

This product is composed of a plastic tube 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:

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.

Nickel: Repeated exposure may cause an allergic skin reaction consisting of itching, redness, swelling, and rash or urticaria (hives) in sensitized individuals. Epidemiological studies in humans have shown an association between lung and nasal cancers and prolonged occupational exposures to high concentrations of nickel.

Chromium: Exposure to high concentrations of chromium dusts or fumes can cause severe respiratory and nasal irritation. Prolonged or repeated exposures to chromium dusts or fumes may cause perforation of the nasal septum, bloody nose and other symptoms of severe nasal irritation.

Manganese: Chronic exposure to very high concentrations of manganese dust has caused nervous system effects including muscle weakness, tremors, and behavioral changes.

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.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Exposure to dust or fume may aggravate an existing dermatitis, asthma, emphysema, or other respiratory disease or neurological condition.

**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	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:** If fire reaches cargo, do not fight. Evacuate all person, including emergency responders from the area for 1500 feet (1/3 mile) in all directions.

**EXTINGUISHING MEDIA:** Flood area with water. If no water is available, carbon dioxide, dry chemical or earth may be used. If the fire reaches the cargo, withdraw and let fire burn.

**SPECIAL FIREFIGHTING PROCEDURES:** In case of fire, use normal fire fighting equipment. Protection concerns must also address the potential of the physical characteristic of this product as explosive.

**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**

<b>HANDLING:</b>	No special requirements
<b>STORAGE:</b>	No special requirements
<i>Shelf Life Limitations:</i>	Not known
<i>Incompatible Materials for Packaging:</i>	None known
<i>Incompatible Materials for Storage or Transport:</i>	Acids, Class A & B explosives, strong oxidizers, and caustics
<b>CONDITIONS TO AVOID:</b>	Mechanical impact or shock and electrical discharge.

**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
7440-02-0	Nickel	1.5 mg/m <sup>3</sup> (inhalable)	1 mg/m <sup>3</sup>	Germany, MAK = 1 mg/m <sup>3</sup> Canada (B.C.), Czechoslovakia, Denmark, Norway – 0.05 mg/m <sup>3</sup> , K1, sensitizer Poland = 0.25 mg/m <sup>3</sup> Ireland, Sweden, Switzerland, U.K. = 0.5 mg/m <sup>3</sup> Belgium, Canada (Alberta & others), Finland, Japan, Mexico, Netherlands – 1 mg/m <sup>3</sup> Portugal = 1.5 mg/m <sup>3</sup>
7439-89-6	Iron	None established	None established	None established
7440-31-5	Tin	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	U.K. (LTEL): 5 mg/m <sup>3</sup> Austria & Germany (MAK), Belgium, Finland, Denmark, The Netherlands, Poland, Switzerland: 2 mg/m <sup>3</sup> Hungary, Norway: 1 mg/m <sup>3</sup>
7440-47-3	Chromium	0.5 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	Belgium, Denmark, France, Japan, Netherlands, Sweden, U.K. – 0.5 mg/m <sup>3</sup> Finland – 0.1 mg/m <sup>3</sup>
7440-21-3	Silicon*	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>	Belgium, Denmark, France, Netherlands, U.K. – 10 mg/m <sup>3</sup> Switzerland – 4 mg/m <sup>3</sup>
7439-96-5	Manganese	0.2 mg/m <sup>3</sup>	Ceiling – 5 mg/m <sup>3</sup>	Belgium, Denmark, Finland, France, Switzerland, U.K. – 1 mg/m <sup>3</sup> Sweden – 2.5 mg/m <sup>3</sup> Germany (MAK) – 0.5 mg/m <sup>3</sup>
9002-88-4	Polyethylene	None established	None established	None established

\*This substance is regulated by OSHA as a Particulate Not Otherwise Regulated (PNOR). The exposure limits listed for both OSHA and ACGIH refer to total dust; the OSHA PEL for the respirable fraction is 5 mg/m<sup>3</sup>.

<b>ENGINEERING CONTROLS:</b>	Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation. Use explosion-proof ventilation.
<b>EYE / FACE PROTECTION:</b>	Use safety glasses.
<b>SKIN PROTECTION:</b>	Not normally needed
<b>RESPIRATORY PROTECTION:</b>	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
Appearance:	Plastic tube with metal head	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, Class A & B explosives, strong oxidizers, and caustics

HAZARDOUS DECOMPOSITION PRODUCTS:

Nitrogen oxides, carbon monoxide, and carbon dioxide

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	Nitro-cellulose	Zinc	Nitro-glycerin	Nickel	Iron	Tin	Chrom-ium	Silicon	Manga-nese	Polyeth-ylene
Oral LD <sub>50</sub>	Not applicable for product	3.5 mg/kg mouse i.p.	> 5 g/kg (rat)	No data	105 mg/kg (rat)	> 5 g/kg (rat)	30 g/kg (rat)	No data	27.5 mg/kg (rat)	3.16 g/kg (rat)	9 g/kg (rat)	>3 g/kg (rat)
Dermal LD <sub>50</sub>	Not applicable for product	375 mg/kg rabbit, s.c.	No data	No data	> 280 mg/kg (rabbit)	> 7.5 g/kg (rabbit s.c.)	No data	No data	No data	No data	No data	No data
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	> 12 mg/kg rat, intratra-cheal	No data	No data	87 mg/m <sup>3</sup> (4 hrs, rat)	No data	No data	No data
Irrita-tion	Not a skin or eye irritant as a loaded round.	Respira-tory irritant	No data	Eye irritant	Mild eye and skin irritant	Respira-tory irritant, skin sensiti-zer	Eye irritant	No data	Respira-tory and nasal irritant	Eye, skin, respira-tory irritant	Mild eye and skin irritant	No data

SUBCHRONIC/ CHRONIC TOXICITY:

No information for product.

CARCINOGENICITY:

In laboratory animal studies, chronic exposure to high concentrations of nickel has caused an increase in lung and nasal tumors. The International Agency for Research on Cancer (IARC) has classified nickel as possibly carcinogenic to humans, group 2B.

MUTAGENICITY:

This product is not known or reported to be mutagenic. Nickel has been shown to be mutagenic in *in vitro* studies.

REPRODUCTIVE, TERATOGENICITY, OR DEVELOPMENTAL EFFECTS:

This product is not known or reported to cause reproductive or developmental effects. Exposure of male rats to high concentrations of nickel caused testicular degeneration. However, symptoms of systemic toxicity, including severe weight loss, were also observed at the same concentrations indicating that the testicular effects were secondary to the frank toxicity.

**NEUROLOGICAL EFFECTS:**

This product is not known or reported to cause neurological effects. Chronic exposure to very high concentrations of manganese dust has caused nervous system effects including muscle weakness, tremors, and behavioral changes in humans.

**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)

**Nickel:** 96 hr LC<sub>50</sub>, rainbow trout = 31.7 mg/L; 96 hr LC<sub>50</sub>, fathead minnow = 3.1 mg/L; 72 hr EC<sub>50</sub>, freshwater algae (4 species) = 0.1 mg/L; 96 hr LC<sub>50</sub>, *Daphnia* = 0.51 mg/L

**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.

**Chromium:** *Daphnia magna*, 48 hr. LC<sub>50</sub> = 0.022 mg/L; Fathead minnow, 96 hr LC<sub>50</sub> = 39 mg/L

**MOBILITY:** No data

**PERSISTENCE/DEGRADABILITY:** Not biodegradable.

**BIOACCUMULATION:** No data

**13. DISPOSAL CONSIDERATIONS**

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D003. This waste is subject to Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly. Material may need to be deactivated before ultimate disposal.

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
<b>PROPER SHIPPING NAME:</b>	Cartridges, Small Arms					
<b>HAZARD CLASS:</b>	1.4S					
<b>UN NO.:</b>	UN 0012					
<b>PACKING GROUP:</b>	II					
<b>HAZARD LABEL/PLACARD:</b>	No label Highway/Water 1.4S Label Air/1.4 Placard over 1001 lbs. (454 kg)					
<b>REPORTABLE QUANTITY:</b>						
<b>SPECIAL COMMENTS:</b>	May be reclassified domestically (U.S.) as an ORM-D if packaged as per 49 CFR 173.63. Mark ORM-D on package per 49 CFR 172.316.					

**15. REGULATORY INFORMATION***US FEDERAL*

TSCA	The components of this product are listed on the Toxic Substance Control Act inventory.				
CERCLA:	Chromium, R.Q. = 5000 lbs.; Copper, R.Q.= 5000 lbs.; Zinc, R.Q. = 1000 lbs.; Nitroglycerin, R.Q. = 10 lbs; Nickel, R.Q. = 100 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, Nickel, Chromium, Manganese				
SARA 313 Hazard Class:	<i>Health:</i>	Acute – No Chronic - No	<i>Fire:</i> No	<i>Reactivity:</i> None	<i>Release of Pressure:</i> 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
Nickel	X	X	X	X	X
Iron	Not listed	Not listed	Not listed	Not listed	Not listed
Tin	Not listed	Not listed	X	X	Not listed
Chromium (not hexavalent)	Not listed	X	X	X	X
Silicon	Not listed	Not listed	X	X	Not listed
Manganese	Not listed	X	X	X	Not listed
Polyethylene	Not listed	Not listed	Not listed	Not listed	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, Nickel, Tin, Manganese compounds, and Chromium

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

**16. OTHER INFORMATION**

REVISIONS: Creation date: 6/1/03; 7/1/09 – updated Emergency Contact Number and 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.