MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00097.0001	**Revision Date:** 1/1/11
Revision No.: 3	**Supercedes:** 1/1/10

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: **NON-TOXIC FRANGIBLE SHOT SHELL LOADS**
Chemical Name: Mixture – Metal Alloy
Synonyms: Frangible Slug Shot Shell, Frangible "00" Buckshot Load
Chemical Family: Metal mixture
Formula: Not applicable - mixture
Product Use: Ammunition – 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
7440-50-8	Copper	35 - 74	231-159-6	None	None
9002-88-4	Polyethylene	10 - 17	Polymer	None	None
7440-31-5	Tin	2.4 – 9.5	231-141-8	None	None
Mixture	Wad (Non-hazardous component)	4 - 11	Not applicable	Not applicable	Not applicable
9004-70-0	Nitrocellulose	5 - 10	Not listed	E*	R 2
7440-66-6	Zinc	1 - 4	231-175-3	F (as dust or powder)	R 15-17
7439-89-6	Iron	0 - 1	231-096-4	None	None
55-63-0	Nitroglycerin	0.5 - 2	200-240-8	E, T+, N	R 3-26/27/28-33-51-53

*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) Degree of hazard (0 = low, 4 = extreme)

Hazardous Materials Identification System (HMIS)	Health: 0	Flammability: 0	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 copper and tin is 100 mg/m^3. The IDLH for nitroglycerin is 75 mg/m^3.

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.

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 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

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.

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)	0.1mg/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
7440-31-5	Tin	2 mg/m^3	2 mg/m^3	U.K. (LTEL): 5 mg/m^3 Austria & Germany (MAK), Belgium, Finland, Denmark, The Netherlands, Poland, Switzerland: 2 mg/m^3 Hungary, Norway: 1 mg/m^3
9002-88-4	Polyethylene	None established	None established	None established
7439-89-6	Iron	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/m3.

ENGINEERING CONTROLS:	Local exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general exhaust ventilation. Use explosion-proof ventilation.
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*
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

PROPERTY	*VALUE*	*PROPERTY*	*VALUE*
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, 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:

	Oral LD_{50}	**Dermal LD_{50}**	**Inhalation LC_{50}**	**Irritation**
For Product:	Not applicable for product	Not applicable for product	Not applicable for product. Particles generated from firing may be slightly toxic.	Not a skin or eye irritant as a loaded round.
For Components:				
Copper	3.5 mg/kg mouse i.p.	375 mg/kg rabbit, s.c.	No data	Respiratory irritant
Nitrocellulose	> 5 g/kg (rat)	No data	No data	No data
Zinc	No data	No data	No data	Eye irritant
Tin	No data	No data	No data	No data
Nitroglycerin	105 mg/kg (rat)	> 280 mg/kg (rabbit)	No data	Mild eye and skin irritant
Polyethylene	>3 g/kg (rat)	No data	No data	No data
Iron	30 g kg (rat)	No data	No data	Eye irritant

SUBCHRONIC/ CHRONIC TOXICITY*:*	No information for product.
CARCINOGENICITY*:*	This product is not listed as a carcinogen by NTP, IARC, 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: 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_{50} > 1000 mg/l (fish, invertebrates, algae)
Nitroglycerin: Bluegill, 96 hour LC_{50} = 1.228 mg/l (static)
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: No data
PERSISTANCE/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
PROPER SHIPPING NAME:	Cartridges, Small Arms					
HAZARD CLASS:	1.4S					
UN NO.:	UN 0012					
PACKING GROUP:	II					
HAZARD LABEL/PLACARD:	No label Highway/Water 1.4S Label Air/1.4 Placard over 1001 lbs. (454 kg)					
REPORTABLE QUANTITY:						
SPECIAL COMMENTS:	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:	Copper, R.Q.= 5000 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, Zinc (fume or dust), Nitroglycerin,				
SARA 313 Hazard Class:	*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	*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
Tin	Not listed	Not listed	X	X	Not listed
Iron	Not listed	Not listed	Not listed	Not listed	Not listed
Polyethylene	Not listed	Not listed	Not listed	Not listed	Not listed

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

16. OTHER INFORMATION

REVISIONS: 7/1/09 – changed emergency contract number and mailing address; 1/1/11 - review
PREPARED BY: Olin Corporation – Winchester Division, Inc.
OTHER: Additional information available from: www.winchester.com
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