



MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00073.001
Revision No.: 15

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

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: SHOTSHELL 8 GAUGE INDUSTRIAL ROUNDS
Chemical Name: Mixture – Metal Alloy
Synonyms: **Slug Loads:** 3 oz.(85 g) lead (CE8S, CE8SPW, CE8RVPW, CE8LVPW); 3 oz.(85 g) zinc (CE8Z, CE8ZPW, CE8ZRVPW); 2-7/8 oz.(82 g) zinc (CE8ZLVPW); 2 oz.(56 g) zinc (CE82Z, CE82ZPW); 2 oz.(56 g) steel (CE8FEPW); 1-5/8 oz.(46 g) iron (CE8FRPW).
Shot Loads: 00-Buckshot 20 pellet 2-1/4 oz.(64 g) lead (CE8B2P); 00-Buckshot 24 pellet 2-3/4 oz.(78 g) lead (CE8B2LVP); #2 chilled shot 3 oz.(85 g) lead (CE8LV2P, CE8HV2P); #4 chilled shot 3 oz.(85 g) lead (CE8LV4P, CE8HV4P); 8 pellet 1-1/8 oz.(32 g) zinc shot (CE8B2ZP).

Chemical Family: Metal mixture
Formula: Not applicable - mixture
Product Use: Assembly of shotshell 8 gauge industrial load components

| | | | |
|------------------------|---|---|--|
| 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

This MSDS covers a number of different products consisting of the following components:

- A) Load – can be Lead Slug, Steel Slug, or Zinc Slug
- B) Primed Shell Case
- C) Wad
- D) Propellant

| CAS Number | Components | % By Weight | EINECS/ ELINCS # | EU Classification | |
|--|-----------------------|-------------|------------------|-----------------------|-------------------------|
| | | | | Symbol | R-Phrase |
| If the load is Lead Slug | | | | | |
| 7439-92-1 | Lead | 65 - 75 | 231-100-4 | T, N* | R1-33-50/53-62 |
| 7440-36-0 | Antimony | 0.1 – 4.5 | 231-146-5 | None | None |
| 7440-38-2 | Arsenic | 0.1 – 1.1 | 231-148-6 | T | R 23/25 |
| If the load is Zinc Slug | | | | | |
| 7440-66-6 | Zinc | 65 - 75 | 231-175-3 | F (as dust or powder) | R 15-17 |
| If the load is Steel Slug | | | | | |
| 7439-89-6 | Iron | 65 - 75 | 231-096-4 | None | None |
| Ingredients in other components | | | | | |
| 7440-50-8 | Copper | 5 - 12 | 231-159-6 | None | None |
| 7439-89-6 | Iron | 0.5 – 2.5 | 231-096-4 | None | None |
| 7440-66-6 | Zinc | 1 - 6 | 231-175-3 | F (as dust or powder) | R 15-17 |
| 9004-70-0 | Nitrocellulose | 1 - 5 | Not listed | E* | R 2 |
| 15245-44-0 | Normal Lead styphnate | 0.1 - 1 | 239-290-0 | E, T, N | R61-3-20/22-33-50/53-62 |
| Mixture | Wad – nonhazardous | 1 – 5% | Not applicable | None | None |

*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 copper and lead is 100 mg/m³. The IDLH for antimony is 50 mg/m³. The IDLH for arsenic is 5 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:

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.

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

Arsenic: Epidemiological studies in humans have shown an association between increased incidences of lung and skin cancer and prolonged exposures to high concentrations of arsenic. Arsenic is classified as a known human carcinogen.

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 lead can aggravate anemia, cardiovascular and respiratory disease.

POTENTIAL ENVIRONMENTAL EFFECTS: Product has not been tested for environmental properties. Lead-containing shot 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: 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) | 0.1 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) |
| 7439-92-1 | Lead | 0.05 mg/m ³ | 0.05 mg/m ³ | Austria, Denmark, Germany, Sweden, Switzerland: 0.1 mg/m ³ Norway, Poland: 0.05 mg/m ³ |
| 7440-66-6 | Zinc | None established | None established | None established |
| 9004-70-0 | Nitrocellulose | None established | None established | None established |
| 7440-36-0 | Antimony | 0.5 mg/m ³ | 0.5 mg/m ³ | Austria, Belgium, Denmark, France, Finland, Germany, Hungary, Netherlands, Norway, Poland, Sweden, UK: 0.5 mg/m ³ |
| 7439-89-6 | Iron | None established | None established | None established |
| 7440-38-8 | Arsenic | 0.01 mg/m ³ | 0.01 mg/m ³ | Germany, MAK – 1 mg/m ³ Austria, Belgium, Finland, Japan, Holland, Czechoslovakia, Hungary and Poland - 0.5 mg/m ³ Italy – 0.25 mg/m ³ Switzerland, Canada (Alberta & others) – 0.2 mg/m ³ Sweden – 0.05 mg/m ³ Canada (B.C.), Denmark = 0.01 mg/m ³ , K1 |
| 15245-44-0 | Normal 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 explosion-proof 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> | Plastic cylinder with brass head | <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 |

| PROPERTY | VALUE | PROPERTY | VALUE |
|-------------------------------|----------------|--------------------------------------|----------------|
| 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, 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 | Lead | Nitrocellulose | Zinc | Iron | Antimony | Lead styphnate | Arsenic |
| Oral LD ₅₀ | Not applicable for product | 3.5 mg/kg mouse i.p. | No data | > 5 g/kg (rat) | No data | 30 g/kg (rat) | 7 g/kg (at) | No data | 763 mg/kg (rat) |
| Dermal LD ₅₀ | Not applicable for product | 375 mg/kg rabbit, s.c. | No data | No data | No data | No data | No data | No data | No data |
| 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 | No data | No data | No data |
| Irritation | Not a skin or eye irritant as a solid. | Respiratory irritant | Not irritating | No data | Eye irritant | Eye irritant | No data | No data | No data |

SUBCHRONIC/ CHRONIC TOXICITY:

Lead has caused blood, kidney and nervous system damage in laboratory animals.

CARCINOGENICITY:

The International Agency for Research on Cancer (IARC) lists lead as possibly carcinogenic to humans, group 2B. In laboratory animal studies, chronic exposure to high concentrations of nickel has caused an increase in lung and nasal tumors. Arsenic is listed as a known human carcinogen by IARC (Group 1), OSHA, NTP and EPA.

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.

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.

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

Nitrocellulose: LC₅₀ > 1000 mg/l (fish, invertebrates, algae)

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.

Arsenic: *Daphnia magna*, 48 hr. LC₅₀ = 3.8 mg/L; Fathead minnow, 96 hr LC₅₀ = 9.9 mg/L

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 | | | | | |
| 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. Land) as an ORM-D if packaged as per 49 CFR 173.63. Mark ORM-D on package as 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: | Arsenic, R.Q. = 1 lb.; Copper, R.Q.= 5000 lbs.; Lead, R.Q. = 10 lbs.; Zinc, R.Q. = 1000 lbs.; Antimony, R.Q. = 5000 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, Lead and Lead compounds, Zinc (fume or dust), Antimony, Arsenic | | | | |
| 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 |
| Lead | X | X | X | X | X |
| Zinc | Not listed | X | Not listed | X | X |
| Nitrocellulose | Not listed | X | X | X | Not listed |
| Iron | Not listed | Not listed | Not listed | Not listed | Not listed |
| Antimony | Not listed | X | X | X | X |
| Arsenic | X | 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, Antimony, Arsenic

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

16. OTHER INFORMATION

REVISIONS: Change to international format, revision of synonyms & composition, 1/1/03; 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

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.