



# MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00100.0001

Creation Date: 8/30/10

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** LEAD FREE CARTRIDGES FOR POWER DEVICES  
**Chemical Name:** Mixture – Metal Alloy  
**Synonyms:** Lead Free Rimfire Cartridge for Power Device, 22, 25, 27 Lead Free Caliber Powertool Round, Lead Free Power Load, Lead Free Blank Power Load and/or Booster  
**Chemical Family:** 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](http://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                  |
| 65997-17-3  | Glass Fines  | 40 – 60     | 266-046-0       | None                  | None                  |
| 29267-75-2  | KDNBF Powder (Potassium dinitrohydroxyhydrobenzofuroxan)   | 30 - 50     | 249-543-7       | E*, Xi                | R 2-36/38             |
| 7440-66-6   | Zinc   | 15 – 32     | 231-175-3       | F (as dust or powder) | R 15-17               |
| 109-27-3    | Tetrazene; (1,3-tetrazolyl-4-guanyl)tetrazene monohydrate) | 2 - 10      | 203-659-4       | E*, Xi                | R 3-36/38             |
| 55-63-0     | Nitroglycerin  | 2 - 6       | 200-240-8       | E, T+, N              | R 3-26/27/28-33-51-53 |
| 84-74-2     | Dibutyl phthalate  | 0.5 – 1.5   | 201-557-4       | T, N                  | R 61-62-50            |
| 85-98-3     | 1,3-Diethyl diphenyl urea                                  | 0.5 – 1.5   | 201-645-2       | None                  | None                  |
| Proprietary | Polyester adipate  | 0.5 – 1.5   | -               | -                     | -                     |

\*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: 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 is 100 mg/m<sup>3</sup>. The IDLH for nitroglycerin is 75 mg/m<sup>3</sup>. The IDLH for dibutyl phthalate is 4,000 mg/m<sup>3</sup>.

**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.

KDNBF Powder, Tetrazene: May cause skin and eye irritation

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).

Dibutyl phthalate: May cause harm to the unborn child. Possible risk of impaired fertility.

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. Firing particles may aggravate existing dermatitis, blood condition, asthma, emphysema, or other respiratory disease.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Product has not been tested for environmental properties. Nitroglycerin and dibutyl phthalate have 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:** This product will explode at elevated temperatures, when subjected to mechanical shock or possibly static discharge.

**EXTINGUISHING MEDIA:** Water spray – apply by mechanical means only. Fight all fires from a remote and explosion-resistant site. Evacuate all non-essential personnel.

**SPECIAL FIREFIGHTING PROCEDURES:** Use flooding quantities of water to cool containers in vicinity of a fire only if it is safe to do so. . 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.

**6. ACCIDENTAL RELEASE MEASURES**

**FOR ALL TRANSPORTATION ACCIDENTS CALL CHEMTREC AT: 1-800-424-9300.**

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 bases, or Strong Oxidizing Materials.   |
| <b>CONDITIONS TO AVOID:</b>                             | 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  |
|------------|---------------------------|---|---|---|
| 7439-89-6  | Iron                      | None established  | None established  | None established  |
| 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)<br>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)<br>Denmark: 1.0 mg/m <sup>3</sup> (dust and powder)<br>Germany (MAK): 0.1 mg/m <sup>3</sup> (fume), 1 mg/m <sup>3</sup> (dusts and mists)  |
| 65997-17-3 | Glass fines*              | 3 mg/m <sup>3</sup> (respirable particles)                          | 5 mg/m <sup>3</sup> (respirable particles)                            | Germany (MAK): 1.5 mg/m <sup>3</sup> (respirable particles)   |
| 29267-75-2 | KDNBF powder              | None established  | None established  | None established  |
| 7440-66-6  | Zinc                      | None established  | None established  | None established  |
| 109-27-3   | Tetrazene                 | None established  | None established  | None established  |
| 55-63-0    | Nitroglycerin             | 0.05 ppm<br>Skin  | 0.2 ppm Ceiling<br>Skin   | Denmark: 0.02 ppm (0.2 mg/m <sup>3</sup> )<br>Norway, Sweden: 0.03 ppm (0.3 mg/m <sup>3</sup> )<br>Austria, Belgium, Germany, The Netherlands, Poland, Switzerland: 0.05 ppm (0.47 mg/m <sup>3</sup> ), skin<br>Finland, France: 0.1 ppm (0.9 mg/m <sup>3</sup> ), skin<br>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><br>Sweden: 3 mg/m <sup>3</sup>  |
| 85-98-3    | 1,3-Diethyl diphenyl urea | None established  | None established  | None established  |
| -          | Polyester adipate         | -   | -   | -   |

\*This substance falls under Particulates Not Otherwise Regulated (OSHA) and Particulates Not Otherwise Specified (ACGIH)

|                                |   |
|--------------------------------|---|
| <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. Use hearing protection. |
| <b>EYE / FACE PROTECTION:</b>  | Use safety glasses.   |
| <b>SKIN PROTECTION:</b>        | Not normally needed.  |
| <b>RESPIRATORY PROTECTION:</b> | Respiratory protection is not normally needed.  |
| <b>GENERAL HYGIENE:</b>        | 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

|                   |   |
|-------------------|---|
| <b>STABILITY:</b> | Stable under normal temperatures and pressure |
|-------------------|---|

MATERIALS TO AVOID: Acids, Class A & B explosives, Strong oxidizers, caustics  
 HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide, nitrogen oxides and potassium oxide  
 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 <sub>50</sub>                 | Dermal LD <sub>50</sub>             | Inhalation LC <sub>50</sub>      | Irritation                                      |
|--|---------------------------------------|-------------------------------------|----------------------------------|---|
| <u>FOR PRODUCT:</u><br><u>COMPONENTS</u> | Unknown.<br>Possibly slightly toxic   | Unknown.<br>Possibly slightly toxic | Unknown. Possibly slightly toxic | Likely eye, skin and respiratory tract irritant |
| Iron                                     | No data                               | No data                             | No data                          | No data   |
| Copper                                   | 3.5 mg/kg (mouse, intraperitoneal)    | No data                             | No data                          | Respiratory irritant (fume or dust)             |
| Glass fines                              | No data                               | No data                             | >20 mg/kg (mouse, intratracheal) | Eye, skin and respiratory tract irritant        |
| KDNBF Powder                             | >2,000 mg/kg (rat) [similar chemical] | No data                             | No data                          | Eye, skin and respiratory tract irritant        |
| Zinc                                     | No data                               | No data                             | No data                          | Eye irritant                                    |
| Tetrazene                                | No data                               | No data                             | No data                          | Eye and respiratory tract irritant              |
| Nitroglycerin                            | 105 mg/kg (rat)                       | 29.2 mg/kg (rat)                    | No data                          | Eye and skin irritant                           |
| Dibutyl phthalate                        | 8 g/kg (rat)                          | >20 ml/kg (rabbit)                  | 4,250 mg/m <sup>3</sup> (rat)    | No data   |
| 1,3-Diethyl diphenyl urea                | 2,750 mg/kg (rat)                     | No data                             | No data                          | No data   |
| Polyester adipate                        | -                                     | -                                   | -                                | -   |

SUBCHRONIC/ CHRONIC TOXICITY:

No information on product. Nitroglycerin has been shown to cause vasodilation and methemoglobinemia (cyanosis).

CARCINOGENICITY:

This product is not listed as a carcinogen by NTP, IARC, OSHA, EPA or ACGIH. Implantation or injection of man-made glass fibers into laboratory animals has resulted in the formation of tumors. However, these studies bypass the animal's natural defense mechanisms and are not necessarily representative of the response in human exposures. IARC lists fibrous glass as possibly carcinogenic to humans, group 2B.

MUTAGENICITY:

This product is not known or reported to be mutagenic. 1,3-diethyl diphenyl urea has been shown to be non-genotoxic in a battery of *in vitro* assays.

REPRODUCTIVE, TERATOGENICITY, OR DEVELOPMENTAL EFFECTS:

This product is not known or reported to cause reproductive or developmental effects. Dibutyl phthalate has caused adverse reproductive and developmental effects in animal studies.

NEUROLOGICAL EFFECTS:  
INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:

This product is not known or reported to cause neurological effects.

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.

**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.

**Nitroglycerin:** Bluegill, 96 hour LC<sub>50</sub> = 1.2 mg/l (static)

**Dibutyl phthalate:** The following concentrations of DBP have been reported lethal to aquatic organisms:

- Mysid shrimp, 96h LC<sub>50</sub> = 0.75 mg/l (static)
- Bluegill, 96h LC<sub>50</sub> = 0.5-1.6 mg/l (flow through)
- Fathead minnows: LC50 = 1.3 mg/l, 96 hours
- Rainbow trout: LC50 = 6.5 mg/l, 96 hours

**MOBILITY:** No data  
**PERSISTANCE/DEGRADABILITY:** Not biodegradable.  
**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 |
|------------------------------|---|---------|------|------|-----|------------|
| <b>PROPER SHIPPING NAME:</b> | Cartridges, power device  |         |      |      |     |            |
| <b>HAZARD CLASS:</b>         | 1.4 S   |         |      |      |     |            |
| <b>UN NO.:</b>               | UN 0323   |         |      |      |     |            |
| <b>PACKING GROUP:</b>        | II  |         |      |      |     |            |
| <b>HAZARD LABEL/PLACARD:</b> | Explosive 1.4 S/1.4 Placard over 1001 lbs. (454 kg)   |         |      |      |     |            |
| <b>REPORTABLE QUANTITY:</b>  | Not applicable  |         |      |      |     |            |
| <b>SPECIAL COMMENTS:</b>     | LAND - See 49 CFR 173.63 for ORM-D Reclassification<br><br>AIR - 25 KG. per package passenger aircraft<br>100 KG. Per package cargo aircraft. |         |      |      |     |            |

**15. REGULATORY INFORMATION**

*US FEDERAL*

|                               |   |                           |                 |                         |                                 |  |
|-------------------------------|---|---------------------------|-----------------|-------------------------|---------------------------------|--|
| <b>TSCA</b>                   | The components of this product are listed on the Toxic Substance Control Act inventory.   |                           |                 |                         |                                 |  |
| <b>CERCLA:</b>                | Copper, R.Q.= 5000 lbs.; Zinc, R.Q. = 1000 lbs.; KDNBF powder, *R.Q. = 100 lbs; Nitroglycerin, R.Q. = 10 lbs; Dibutyl phthalate, R.Q. = 10 lbs. (For metals: no reporting is required if diameter of the pieces of metal is equal to or exceeds 100 micrometers (0.004 inches)) |                           |                 |                         |                                 |  |
| <b>SARA 313:</b>              | Copper, Zinc (fume or dust), Nitroglycerin, Dibutylphthalate  |                           |                 |                         |                                 |  |
| <b>SARA 313 Hazard Class:</b> | <i>Health:</i>  | Acute –No<br>Chronic - No | <i>Fire:</i> No | <i>Reactivity:</i> None | <i>Release of Pressure:</i> Yes |  |
| <b>SARA 302 EHS List:</b>     | 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   |
|---------------------------|--------------|------------|--------------|---------------|------------|
| Iron                      | Not listed   | Not listed | Not listed   | X             | X          |
| Copper                    | Not listed   | X          | X            | X             | X          |
| Glass fines               | Not listed   | Not listed | Not listed   | Not listed    | Not listed |
| KDNBF powder              | Not listed   | X          | Not listed   | -             | -          |
| Zinc                      | Not listed   | X          | Not listed   | X             | X          |
| Tetrazene                 | Not listed   | Not listed | Not listed   | Not listed    | Not listed |
| Nitroglycerin             | Not listed   | X          | X            | X             | Not listed |
| Dibutyl phthalate         | Not listed   | X          | X            | X             | X          |
| 1,3-Diethyl diphenyl urea | Not listed   | Not listed | Not listed   | -             | -          |
| Polyester adipate         | -            | -          | -            | -             | -          |

\* "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 listed on the NDSL (KDNBF powder, Tetrazene).

IDL: Copper (1%, concentration weight/weight), Dibutyl phthalate (1%, concentration weight/weight)

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

**16. OTHER INFORMATION**

**REVISIONS:**

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.