



**MATERIAL
SAFETY DATA
SHEET**

Olin MSDS No.: 00101.0001 Creation Date: 8/30/10

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: LEAD FREE RIMFIRE PRIMED SHELLCASES
Chemical Name: Mixture – Metal Alloy
Synonyms: Lead Free Rimfire Primed Brass, Lead Free Rimfire Primed Shellcase, Lead Free Rimfire Rifle Primed Case, Lead Free Rimfire Pistol Primed Case, Lead Free Rimfire Rifle Primed Shellcase, Lead Free Rimfire Pistol Primed Shellcase, Lead Free Rimfire Rifle Primed Brass, Lead Free Rimfire Pistol Primed Brass, Lead Free RF Primed Case, Lead Free RF Primed Shellcase, Lead Free RF Primed Brass, LF PSC (Primed Shellcase), and LF EPC (Empty Primed Case)
Chemical Family: Mixture
Formula: Not applicable – mixture
Product Use/ Description: Primed Shellcases for Ammunition or Powertool Loads

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

Product consists of the following 2 components: A) Shellcase, and B) Primer – Lead free rimfire primer
All percent compositions specified below are based on the entire product

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 – 94	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	3 – 38	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) Degree of hazard (0 = low, 4 = extreme)

Hazardous Materials Identification System (HMIS) Health: 0 Flammability: 0 Physical Hazard:
 National Fire Protection Association (NFPA) Mixture. Not rated. Explosive: 2

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/m³. The IDLH for nitroglycerin is 75 mg/m³. The IDLH for dibutyl phthalate is 4,000 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.
- 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

HANDLING:	No special requirements
STORAGE:	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.
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
7439-89-6	Iron	None established	None established	None established
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)
65997-17-3	Glass fines*	3 mg/m ³ (respirable particles)	5 mg/m ³ (respirable particles)	Germany (MAK): 1.5 mg/m ³ (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 Skin	0.2 ppm Ceiling 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
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)

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 is 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>	Cylindrical brass or silver colored 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

PROPERTY	VALUE	PROPERTY	VALUE
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, 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 ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀	Irritation
<u>FOR PRODUCT:</u> <u>COMPONENTS</u>	Unknown. Possibly slightly toxic	Unknown. 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 ³ (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: 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.
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 LC₅₀ = 1.2 mg/l (static)
Dibutyl phthalate: The following concentrations of DBP have been reported lethal to aquatic organisms:
 Mysid shrimp, 96h LC₅₀ = 0.75 mg/l (static)
 Bluegill, 96h LC₅₀ = 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
PROPER SHIPPING NAME:	Not regulated for domestic U.S. transport	Cases, Cartridges, Empty with Primer				
HAZARD CLASS:	1.4 S					
UN NO.:	UN 0055					
PACKING GROUP:	II					
HAZARD LABEL/PLACARD:	Explosive 1.4 S/1.4 Placard over 1001 lbs. (454 kg)					
REPORTABLE QUANTITY:	Not applicable					
SPECIAL COMMENTS:	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.; 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))				
SARA 313:	Copper, Zinc (fume or dust), Nitroglycerin, Dibutylphthalate				
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
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

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.