



DEPARTMENT OF THE ARMY
MASSACHUSETTS ARMY NATIONAL GUARD TRAINING SITE
CAMP EDWARDS, MASSACHUSETTS 02542-5003

REPLY TO
ATTENTION OF

Administrative Officer, Camp Edwards:

18 August 2015

Lynne Jennings
US EPA Region 1
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Dear Ms. Jennings,

The Massachusetts National Guard (MANG) is petitioning EPA Region 1 for modification of Administrative Order 2 (AO2), with regards to the use of the **Percussion Activated Neutralizer (PAN)** at Camp Edwards, Scope of Work (SOW) issued in April 1997 in accordance with US EPA Region 1 EPA Docket No.: SDWA I-97-1030 (AO2) page 28, Section XXXIV MODIFICATION OF THE SOW, paragraph 125:

"If the Respondent believes that a modification of the Work specified in the SOW...is necessary and appropriate, Respondent may petition to EPA for an EPA determination on such potential modification, submitting appropriate documentation. Within a reasonable time after the receipt of such petition EPA will make a determination whether the SOW should be modified. Basis for such a petition may include, but not be limited to the following...documentation demonstrating that the use of a propellant or pyrotechnic that is suspended pursuant to this order does not present a threat of harm to the public or the environment that would warrant its continued suspension under this order..."

The MANG recognizes that the PAN and HMX was not specifically banned under AO2. However, we would request EPA's opinion with regard to this item under AO2.

This petition specifically requests that Section 11, A., f., Response Activities, page 29 of the AO2 SOW, which "suspend(s) the following activities...All use of pyrotechnics at or near the Training Range and Impact Area" be modified to concur with the use of the PAN, in those areas of Camp Edwards.

The MANG believes the device is an effective and environmentally-safe device that meets EPA's modification requirements and can be responsibly used in required training scenarios throughout the base without additional restrictions.

To support this petition we have included a basic presentation showing this device, its structure, and firing component make up.

With this training tool available to Explosive Ordnance Device Soldiers, they will be able to conduct their required initial training at Camp Edwards, thereby increasing training time and avoiding excess travel time to installations further afield. This is an important goal for the MANG along with responsible stewardship and care of the environment. We appreciate your assistance to meet this goal.

Thank you for your cooperation and attention with this request. If you have any questions please feel free to contact my office.

Respectfully,

A handwritten signature in black ink, appearing to read 'Nathan A. Wilder', written in a cursive style.

NATHAN A. WILDER
MAJ, EN
Administrative Officer
Camp Edwards

Percussion Activated Neutralizer (PAN)
At
Camp Edwards



The PAN is used to disrupt explosive devices with emphasis on Improvised Explosive Devices (IEDs)

Proposed use in training environment only (no live IEDs to be used).

Only blanks or water can be used for training at Camp Edwards.

Only performed by Explosive Ordnance Disposal Technicians with a minimum of 3 on site, a team leader, and a range safety officer (RSO).



Supporting Photo

Breech end of PAN



Supporting Photo

Barrel end of PAN with water plug



PAN Training Use Areas:

Cantonment Area adjacent to the EOD Bldg.



Cantonment Area at MOUT Site Calero.



Soldier Validation Lane:
Camp Edwards Training Area



PAN Rounds and Actuators

Rounds Used in Breech

- MK276 (AA64)
Low Velocity Blank, 12 GA
- MK278 (AA66)
Non-lethal Blank, 12 GA
- MK 277 (DWEC)
Enhanced Blank, 12 GA
- M174 (Used in Breech of MK2 MOD1)
.50 Cal Blank (Electric Initiated)
MK2 can be used with / without steel projectile

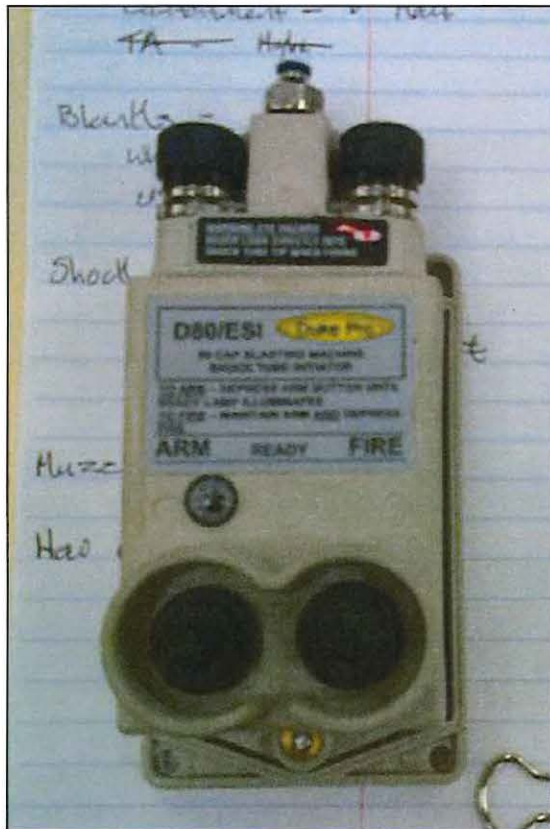


Initiators:

MK34-1000FT Pyrotechnic lead

Wire leads for .50 Cal

Both leads initiated with D80/ESI



PAN Usage:

Up to 180 shots / year for MA Soldiers

Potential for up to 250 shots / year including
out of state Soldiers

MK34 “Shock Tube”:

Internally coated with HMX.

Each 1000ft Roll contains 0.011429lbs of
HMX internal coating

In general each shot uses 100ft of Shock
Tube. This is equivalent to .0011429lbs
HMX / Shot

There is the potential for 180 to 250 shots /
year.

This equates to 0.21-0.29lbs HMX / year.



MIDAS Data
for
PAN Firing Components

MK276, 12GA

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Page 1 of 1
9/8/2014

JMC - MIDAS Detailed Structure For An Item

Type: M	Draw No: 6915190	Rev:	Version: 1	Family: SCS	Reported Weight: 0.040000	Unit: LB
Nomenclature: CTG 12GA MK276 MOD0 LOW VELOCITY BLANK					Reported Weight (lbs): 0.040000	
NSN: 1385014863732-AA64					Calculated Weight (lbs): 0.002857	7.14 %
					Status: PARTIAL	

Drawing #	Rev	Ver	Sed/Alt	Nomenclature (Material)	Type	Mat. Code	Reported Weight	Unit	Factor	Calc. Factor	Contributed Weight (Lb)	Specification	Rev	TGCS
6915190	1	STD		CTG 12GA MK276 MOD0 LOW VELOCITY BLANK	M		0.040000	LB	1	1		WS-33599		
6915190*1	1	STD		CTG CASE	P	I			1	1				
	1	STD		PLASTIC	Mtl	I			1	1		UNKNOWN		
	1	STD		STENCIL INK	B	B			1	1		A-A-208		1.000
	1	STD		KETONES (N/A) (30%)	Cmpd	B			1	1				
	1	STD		PROP (N/A) (25%)	Cmpd	B			1	1				
	1	STD		PIGMENT (N/A) (10%)	Cmpd	B			1	1				
	1	STD		TOLUENE (108-88-3) (10%)	Cmpd	B			1	1				
	1	STD		ACRYLIC RESIN (N/A) (5%)	Cmpd	B			1	1				
6915190*2	1	STD		CTG HEAD	P	I			1	1				
	1	STD		BRASS	Mtl	I			1	1		UNKNOWN		
	1	STD		PROP CHG	P	X	20.000000	GR	1	1				
	1	STD		PROP (OLIN)	Mtl	X	20.000000	GR	1	1	0.002857	VENDOR ITEM		
	1	STD		PROP (OLIN) (100%)	Cmpd	X	20.000000	GR	1	1		VENDOR ITEM		
6915190*3	1	STD		PRIMER PERC	C				1	1				
	1	STD		UNKNOWN PEP	P	X			1	1				
	1	STD		UNKNOWN PEP	Mtl	X			1	1		UNKNOWN		J

0.002857

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MK277, 12GA

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Page 1 of 2
9/8/2014

JMC - MIDAS Detailed Structure For An Item

Type: M	Draw No: 6915191	Rev: A	Version: 1	Family: SCS	Reported Weight: 0.044000	Unit: LB
Nomenclature: CTG 12GA EOD MK277 MOD0 (ENHANCED BLANK)					Reported Weight (lbs): 0.044000	
NSN: 138501488320-DWEC					Calculated Weight (lbs): 0.015715	35.72 %
Status: COMPLETE						

Drawing #	Rev	Ver	Std./ Alt.	Nomenclature (Material)	Type	Mat. Code	Reported Weight	Unit	Factor	Calc. Factor	Contributed Weight (Lb)	Specification	Rev	TGCS
6915191	A	1	STD	CTG 12GA EOD MK277 MOD0 (ENHANCED BLANK)	M		0.044000	LB	1	1		WS-33599		
6915191*1	A	1	STD	CTG CASE	P	I			1	1				
		1	STD	PLASTIC	Mtl	I			1	1		UNENOWN		
		1	STD	STENCIL INK	B	B			1	1		A-A-208		/1/0/1
		1	STD	KETONES (N/A) (30%)	Cmpd	B			1	1				
		1	STD	PROP (N/A) (25%)	Cmpd	B			1	1				
		1	STD	PIGMENT (N/A) (10%)	Cmpd	B			1	1				
		1	STD	TOLUENE (108-88-3) (10%)	Cmpd	B			1	1				
		1	STD	ACRYLIC RESIN (N/A) (5%)	Cmpd	B			1	1				
6915191*2	A	1	STD	CTG HEAD	P	I			1	1				
		1	STD	BRASS	Mtl	I			1	1		UNENOWN		
6915191*3	A	1	STD	WADDING	P	I			1	1				
		1	STD	PLASTIC	Mtl	I			1	1		UNENOWN		
		1	STD	PWDR SMKLESS	P	X	90.000000	GR	1	1				
		1	STD	PWDR SMKLESS (SCOTT 4100)	Mtl	X	90.000000	GR	1	1	0.012857	VENDOR ITEM		
		1	STD	CALCIUM CARBONATE (1317-65-3)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	DIBUTYL PHTHALATE (84-74-2)	Cmpd	X		GR	1	1				
		1	STD	DINITROTOLUENE (121-14-2)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	DIPHENYLAMINE (122-39-4)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	ETHYL CENTRALITE (85-98-3)	Cmpd	X		GR	1	1				
		1	STD	GRAPHITE (7782-42-5)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	NITROCELLULOSE (9004-70-0)	Cmpd	X		GR	1	1				
		1	STD	NITROGLYCERIN (55-63-0)	Cmpd	X		GR	1	1				
		1	STD	POTASSIUM NITRATE (7757-79-1)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	POTASSIUM SULFATE (7778-80-5)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	SODIUM SULFATE (7757-82-6)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	PWDR SMKLESS	P	X	20.000000	GR	1	1				
		1	STD	PWDR SMKLESS (HERCO)	Mtl	X	20.000000	GR	1	1	0.002857	VENDOR ITEM		
		1	STD	NITROGLYCERIN (55-63-0)	Cmpd	X		GR	1	1		VENDOR ITEM		
		1	STD	ROSIN (8050-09-7)	Cmpd	X		GR	1	1				
		1	STD	UNENOWN	Cmpd	X		GR	1	1		VENDOR ITEM		
6915191*4	A	1	STD	PRIMER PERC #616	C				1	1				
		1	STD	UNENOWN PEP	P	X			1	1				

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MK278, 12GA

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Page 1 of 1
9/8/2014

JMC - MIDAS Detailed Structure For An Item

Type: C Draw No: 6915192 Rev: Version: 2
 Nomenclature: CTG 12GA SHOTGUN NON-LETHAL MK278 MOD0
 NSN: 1385014887608-AA66 Status: PARTIAL

Reported Weight: 0.045000 Unit: LB
 Reported Weight (lbs): 0.045000
 Calculated Weight (lbs): 0.00 %

Drawing #	Rev	Ver	Std/ Alt	Nomenclature (Material)	Type	Mat Code	Reported Weight	Unit	Factor	Calc. Factor	Contributed Weight (Lb)	Specification	Rev	TGCS
6915192		2	STD	CTG 12GA SHOTGUN NON-LETHAL MK278 MOD0	C		0.045000	LB	1	1		WS-33599		
		1	STD	BLACK PWDR	P	X			1	1				
		1	STD	BLACK PWDR	Mtl	X			1	1		UNKNOWN		
		1	STD	BLACK PWDR (100%)	Cmpd	X			1	1		UNKNOWN		
6915192*2		1	STD	PRIMER	C				1	1				
		1	STD	UNKNOWN PEP	P	X			1	1				
		1	STD	PRIMER.MIX	Mtl	X			1	1		UNKNOWN PEP		
		1	STD	PRIMER MIX (100%)	Cmpd	X			1	1		UNKNOWN PEP		

0.000000

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.50 CAL Blank Electric Initiated

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Page 1 of 4
4/21/2015

JMC - MIDAS Detailed Structure For An Item

Type: M Draw No: 2193702 Rev: L Version: 1 Family: SCS
 Nomenclature: CTG CAL .50 BLK (ELECT INITIATED)
 NSN: 1385005122886-M174, 1385006050253-M174, Status: COMPLETE
 1385008963694-M174

Reported Weight: 0.170000 Unit: LB
 Reported Weight (lbs): 0.170000
 Calculated Weight (lbs): 0.173216 101.89 %

Drawing #	Rev	Ver	Std/Alt	Nomenclature (Material)	Type	Mat. Code	Reported Weight	Unit	Factor	Calc. Factor	Contributed Weight (Lb)	Specification	Rev	TGCS
2193702	L	1	STD	CTG CAL .50 BLK (ELECT INITIATED)	M		0.170000	LB	1	1		WS-13696		
2299132	E	1	STD	CASE CTG	P	I	870.000000	GR	1	1				
		1	STD	BRASS	Mtl	I	870.000000	GR	1	1	0.124288	ASTM-B36		/260//
		1	STD	COPPER (7440-50-8) (70%)	Cmpd	I	609.000000	GR	1	1				
		1	STD	ZINC (7440-66-6) (30%)	Cmpd	I	261.000000	GR	1	1				
		1	STD	LACQUER CELL NITRATE	B	B			1	1		MIL-L-10287		/1 OR 2//
		1	STD	ISOBUTYL ACETATE (110-19-0) (29.9%)	Cmpd	B			1	1				
		1	STD	TOLUENE (106-88-3) (15.5%)	Cmpd	B			1	1				
		1	STD	XYLENE (1330-20-7) (12.4%)	Cmpd	B			1	1				
		1	STD	ISOBUTYL ALCOHOL (78-83-1) (4%)	Cmpd	B			1	1				
		1	STD	ISOPROPYL ALCOHOL (67-63-0) (3%)	Cmpd	B			1	1				
		1	STD	STENCIL INK	B	B			1	1		A-A-208		/1//
		1	STD	KETONES (N/A) (30%)	Cmpd	B			1	1				
		1	STD	PROP (N/A) (27%)	Cmpd	B			1	1				
		1	STD	PIGMENT (N/A) (10%)	Cmpd	B			1	1				
		1	STD	TOLUENE (106-88-3) (10%)	Cmpd	B			1	1				
		1	STD	ACRYLIC RESIN (N/A) (7%)	Cmpd	B			1	1				
		1	STD	PROP CHG	P	X	162.000000	GR	1	1				
2114042*1		1	STD	CHG PROP	Mtl	X	162.000000	GR	1	1	0.023143			
		1	STD	NITROCELLULOSE (9004-70-0) (79.12%)	Cmpd	X	128.174400	GR	1	1		MIL-N-244		/1/C//
		1	STD	POTASSIUM NITRATE (7757-79-1) (10.02%)	Cmpd	X	16.232400	GR	1	1		MIL-P-156		//1//
		1	STD	NITROGLYCERIN (55-63-0) (5.49%)	Cmpd	X	8.893800	GR	1	1		MIL-N-246		
		1	STD	CHARCOAL (7440-44-0) (2.09%)	Cmpd	X	3.385800	GR	1	1		IAN-C-178		
		1	STD	SULFUR (7704-34-9) (1.4%)	Cmpd	X	2.268000	GR	1	1		MIL-S-14929		
		1	STD	DIPHENYLAMINE (122-39-4) (0.68%)	Cmpd	X	1.101600	GR	1	1		MIL-D-98		
		1	STD	POTASSIUM SULFATE (7778-80-5) (0.68%)	Cmpd	X	1.101600	GR	1	1		MIL-P-193		/1//
		1	STD	ETHYL CENTRALITE (85-98-3) (0.27%)	Cmpd	X	0.437400	GR	1	1		MIL-E-255		
		1	STD	GRAPHITE (7782-42-5) (0.23%)	Cmpd	X	0.372600	GR	1	1		MIL-G-155		
		1	STD	ETHYL ALCOHOL (64-17-5) (0.02%)	Cmpd	X	0.032400	GR	1	1		O-E-760		
2193702*6		1	STD	COTTON	P	I	1.000000	GR	1	1				
		1	STD	COTTON	Mtl	I	1.000000	GR	1	1	0.000143	III-C-561		/B//
2299133	D	1	STD	PLUG CLOSURE	P	I	4.600000	GR	1	1				

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MK34 "Shock Tube"

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Page 1 of 1
4/21/2015

JMC - MIDAS Detailed Structure For An Item

Type: M Draw No: 7546690 Rev: A Version: 1 Family: FPM Reported Weight: 10.000000 Unit: LB
 Nomenclature: PYROTECHNIC LEAD MK34 MOD0 (1000FT) Reported Weight (lbs): 10.000000
 NSN: 1375014949836-DWEI Status: COMPLETE Calculated Weight (lbs): 9.912981 99.13 %

Drawing #	Rev	Ver	Std/Alt	Nomenclature (Material)	Type	Mst. Code	Reported Weight	Unit	Factor	Calc. Factor	Contributed Weight (Lb)	Specification	Rev	TGCS
7546690	A	1	STD	PYROTECHNIC LEAD MK34 MOD0 (1000FT)	M		10.000000	LB	1	1				
7546690	A	2	STD	PYROTECHNIC LEAD MK34 MOD0 (1 FT)	C		0.010000	LB	1000	1000				
7546690*1	A	1	STD	TUBE	P	I	4.490500	GM	1	1000				
		1	STD	UNENOWN MATERIAL	Mtl	I	4.490500	GM	1	1000	9.901553	UNENOWN		
		1	STD	PYROTECHNIC LEAD	P	X	0.080000	GR	1	1000				
7546690*2	A	1	STD	HMX/ALUMINUM PWDR	Mtl	X	0.080000	GR	1	1000	0.011429			
		1	STD	HMX (2691-41-0) (91%)	Compd	X	0.072800	GR	1	1000		MIL-DTL-45444		
		1	STD	ALUMINUM PWDR (7429-90-5) (9%)	Compd	X	0.007200	GR	1	1000		MIL-A-512		

9.912981



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MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00072.0001
Revision No.: 18

Revision Date: 1/1/15
Supersedes: 1/1/14

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: SHOTSHELL BLANK ROUNDS
Chemical Name: Mixture – Metal Alloy
Synonyms: Refers to the following products: Winchester Field Trial Popper Load 12 gauge, Blank Loads 10 and 12 gauge
Chemical Family: Mixture
Formula: Not applicable - mixture
Product Use/ Description: Ammunition

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:
US/Canada: 1-800-424-9300
Outside US/Canada: 703-527-3887
Customer #: ccn24728

2. COMPOSITION / INFORMATION ON INGREDIENTS

CAS Number	Components	% By Weight	EINECS/ ELINCS #	EU Classification	
				Symbol	R-Phrase
7440-50-8	Copper	7 - 15	231-159-6	None	None
7440-66-6	Zinc	3 - 7	231-175-3	F (as dust or powder)	R 15-17
84-74-2	Dibutyl phthalate	3 - 7	201-55-74	None	None
7757-79-1	Potassium nitrate	35 - 38	231-818-8	O*, Xi	R8-R36/38
16291-96-6	Charcoal	4 - 9	240-383-3	None	None
9004-70-0	Nitrocellulose	30 - 45	Not listed	E*	R 2
55-63-0	Nitroglycerin	3 - 7	200-240-8	E, T+, N	R 3-26/27/28-33-51-53
7704-34-9	Sulfur	4 - 10	231-722-6	None	None
9002-88-4	Polyethylene	15 - 30	Polymer	None	None
7439-89-6	Iron	1 - 5	231-096-4	None	None
15245-44-0	Normal Lead styphnate	0.1 - 1	239-290-0	E, T, N	R61-3-20/22-33-50/53-62

*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 dibutyl phthalate is 4000 mg/m³. The IDLH for nitroglycerin is 75 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 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:

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

Potassium nitrate: Ingestion of large doses of potassium nitrate can lead to the development of methemoglobinemia (inability of the blood to carry sufficient oxygen). It is not anticipated that exposure from this product would cause this effect.

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.

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).

It is unlikely that the amount of particles that someone would be exposed to from firing this product 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. Exposure to lead can aggravate anemia, cardiovascular and respiratory disease.

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. Friction.

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)
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
7757-79-1	Potassium nitrate	None established	None established	None established
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
16291-96-6	Charcoal	None established	None established	None established
7704-34-9	Sulfur	None established	None established	None established
9002-88-4	Polyethylene	None established	None established	None established
7439-89-6	Iron	None established	None established	None established
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
Appearance:	Plastic cylindrical tube	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

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, 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 product is fired.

ACUTE ANIMAL TOXICITY DATA:

For Product:		For Components										
		Copper	Nitro-cellulose	Lead Styph-nate	Dibutyl phtha-late	Nitrogly-cerin	Zinc	Sulfur	Potassium nitrate	Polyethyl-ene	Char-coal	Iron
Oral LD ₅₀	Not applicable for product	3.5 mg/kg (mouse, intra-peritone al)	> 5 g/kg (rat)	No data	8 g/kg (rat)	105 mg/kg (rat)	No data	>8.44 g/kg (rat)	3750 mg/kg (at)	>3 g/kg (rat)	No data	30 g/kg (rat)
Dermal LD ₅₀	Not applicable for product	375 mg/kg (rabbit, subcuta-neous)	No data	No data	> 20 ml/kg (rabbit)	> 280 mg/kg (rabbit)	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	4250 mg/m ³ (rat)	No data	No data	1660 mg/m ³	No data	No data	No data	No data
Irritation	Not a skin or eye irritant as a solid.	Respira-tory irritant	No data	No data	No data	Mild eye and skin irritant	Eye irritant	Eye and skin irritant	No data	No data	Eye irritant	Eye irritant

SUBCHRONIC/ CHRONIC TOXICITY: CARCINOGENICITY:

Lead has caused blood, kidney and nervous system damage in laboratory animals. The International Agency for Research on Cancer (IARC) lists lead as possibly carcinogenic to humans, group 2B.

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. Dibutyl phthalate has caused reproductive and developmental effects in animal studies.

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.

Nitrocellulose: LC₅₀ > 1000 mg/l (fish, invertebrates, algae)
Nitroglycerin: Bluegill, 96 hour LC₅₀ = 1.228 mg/l (static)
Lead: LC 50 (48 hrs.) to bluegill (*Lepomis macrochirus*) is reported to be 2-5 mg/l. Lead is toxic to waterfowl.
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

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, blank					
HAZARD CLASS:	Explosive, 1.4S					
UN NO.:	UN 0014					
PACKING GROUP:	II					
HAZARD LABEL/PLACARD:	Labels not required for ground or water shipment. Placards are not required (see 49 CFR 172.504.) For international air shipments, UN0014 must be labeled 1.4S. For domestic air shipments, UN0014 must be labeled 1.4S. For Limited Quantity must be marked with Limited Quantity "Y".					
REPORTABLE QUANTITY:	Not applicable					
SPECIAL COMMENTS:	LAND - See 49 CFR 173.63 for ORM-D or Limited Quantity Reclassification Limited Quantity is recognized for domestic and international transportation. Limited Quantity is not authorized for international air shipment. ORM-D will no longer be valid for air shipment effective January 1, 2013, and no longer valid for any mode effective January 1, 2020.					

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.; Dibutyl phthalate, 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, Dibutyl phthalate, Lead and lead compounds					
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

Zinc	Not listed	X	Not listed	X	X
Nitrocellulose	Not listed	X	X	X	Not listed
Nitroglycerin	Not listed	X	X	X	Not listed
Potassium nitrate	Not listed	Not listed	X	X	Not listed
Sulfur	Not listed	Not listed	X	X	Not listed
Iron	Not listed	Not listed	Not listed	Not listed	Not listed
Lead styphnate	X	Not listed	Not listed	X	Not listed
Polyethylene	Not listed	Not listed	Not listed	Not listed	Not listed
Dibutyl phthalate	Not listed	X	X	X	X
Charcoal	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, Dibutyl phthalate

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

16. OTHER INFORMATION

REVISIONS: New International format, toxicology review – 1/1/03; 7/1/09 – updated Emergency Contact Number and address; 1/1/11 - review; 1/1/12 review; 3/20/12 – Updated Emergency Contact Number; 7/26/12 Update to Transportation Information.; 1/1/13 – review; 8/2/13 Update to Transportation Information; 1/1/14 – review; 1/1/15 - 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.

SECTION 1: IDENTIFICATION

Product Identifier

Product Name: Small arms primers

Product Code: 100, 150, 155, 200, 205, 210, 215, 209(A), and Gold Medal

Intended Use of the Product

Small arms ammunition manufacturing and reloading

Name, Address, and Telephone of the Responsible Party

Company

Federal Cartridge Company

900 Ehlen Drive

Anoka, MN 55303

T 1-800-635-7656

Emergency Telephone Number

Emergency number : 1-800-424-9300 (Inside US), 01-703-527-3887 (Outside US) - (CHEMTREC, Day or Night)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Expl. 1.4S	H204
Acute Tox. 3 (Oral)	H301
Acute Tox. 4 (Inhalation:dust,mist)	H332
Repr. 1A	H360
STOT RE 2	H373

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



Signal Word (GHS-US)

: Danger

Hazard Statements (GHS-US)

: H204 - Fire or projection hazard.
H301+H332 - Toxic if swallowed, or if inhaled.
H360 - May damage fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, open flames. - No smoking.
P250 - Do not subject to friction, grinding, shock.
P260 - Do not breathe dust, fume.
P264 - Wash hands, forearms and exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective clothing, protective gloves, eye protection.
P284 - [In case of inadequate ventilation] Wear respiratory protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P310 - Immediately call a POISON CENTER/doctor.

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P320 - Specific treatment is urgent (see Section 4).
P330 - Rinse mouth.
P361 - Take off immediately all contaminated clothing.
P363 - Wash contaminated clothing before reuse.
P374 - Fight fire with normal precautions from a reasonable distance.
P401 - Store in accordance with, local, regional, national, territorial, provincial, and international regulations.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P501 - Dispose of contents according to local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Lead and barium are toxic metals that may be released during the firing of primers. Care should be taken in the cleaning of range facilities to minimize the exposure potential to lead and barium. Persons engaged in these activities should wear protective clothing with an appropriate respirator. Range operators should consult OSHA 1910.1025 for details pertaining to the handling of lead in the work environment.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
Copper	(CAS No) 7440-50-8	54 - 86	Comb. Dust Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Zinc	(CAS No) 7440-66-6	3 - 37	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Nickel**	(CAS No) 7440-02-0	≤ 1	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Antimony Sulfide*	(CAS No) 1345-04-6	0.5 – 4	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Aquatic Chronic 2, H411
Barium*	(CAS No) 7440-39-3	1 – 8	Water-react. 2, H261 Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335
Lead, dihydroxy[2,4,6-trinitro-1,3-benzenediolato(2-)]di-*	(CAS No) 12403-82-6	2 - 8	Expl. 1.1, H201 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Aluminum*	(CAS No) 7429-90-5	0.1 - 2	Flam. Sol. 1, H228 Water-react. 2, H261
Nitrocellulose*	(CAS No) 9004-70-0	0 – 2.0	Flam. Sol. 1, H228
Nitroglycerin*	(CAS No) 55-63-0	0 – 0.2	Unst. Expl, H200 Acute Tox. 2 (Oral), H300 Acute Tox. 2 (Dermal), H310 Acute Tox. 2 (Inhalation:dust,mist), H330

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

			STOT RE 2, H373 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
1-Tetrazene-1-carboximidic acid, 4-(aminoiminomethyl)-, 2-nitrosohydrazide*	(CAS No) 109-27-3	< 0.1	Unst. Expl, H200

*The hazardous components of this product are encased within a shell and are unlikely to be released under normal handling conditions. Therefore, the health and environmental hazards associated with certain components do not apply to the product overall.

**It is suspected that nickel causes cancer and damage to the respiratory tract via inhalation. Because this product is in massive form, it is unlikely that respiration is a potential route of exposure. Therefore, the hazards usually associated with nickel do not apply to this product.

The ecotoxicological information applies to the materials encased within the product.

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

Inhalation: When symptoms occur: go into open air and ventilate suspected area. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Call a POISON CENTER/doctor/physician if you feel unwell. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.

Ingestion: Rinse mouth. Do not induce vomiting. Get medical advice and attention if you feel unwell.

Most Important Symptoms and Effects Both Acute and Delayed

General: Toxic if swallowed, in contact with skin or if inhaled. Projectiles from fired cartridges can cause puncture wounds. When cartridges are fired or otherwise discharged, dust, vapors, and/or fumes may be absorbed by the digestive system and can result in both acute and chronic overexposure. Ingestion of a complete primer can cause irritation to the digestive system, and possibly other unknown health effects.

Inhalation: Fatal if inhaled.

Skin Contact: May cause skin irritation.

Eye Contact: May cause eye irritation.

Ingestion: Toxic if swallowed.

Chronic Symptoms: May damage fertility. May damage the unborn child. May cause damage to organs through prolonged or repeated exposure.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

Unsuitable Extinguishing Media: DO NOT fight fires involving explosives.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: May ignite if heated to 250 °F (121 °C) causing projection of unconfined primers.

Explosion Hazard: Explosive. Explosion risk in case of fire. Unpackaged primer detonations can propagate causing simultaneous detonation of surrounding primers resulting in a violent explosion.

Reactivity: May detonate with friction, impact, and heat.

Advice for Firefighters

Precautionary Measures Fire: Do not breathe fumes from fires or vapors from decomposition.

Firefighting Instructions: Exercise caution when fighting any chemical fire. DO NOT fight fire when fire reaches explosives. Evacuate area.

Protection During Firefighting: Firefighters should wear full protective gear when fighting or downwind of initial fire.

Hazardous Combustion Products: Metal oxides. Nitrogen oxides. Carbon oxides (CO, CO₂).

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid skin and eye contact. Do not breathe dust or fumes. Remove ignition sources. No naked lights. No smoking. Evacuate danger area. Do not allow product to spread into the environment.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area.

Environmental Precautions

Avoid release to the environment.

Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid. Use only non-sparking tools.

Methods for Cleaning Up: DO NOT SWEEP SPILLED PRIMERS INTO A PILE. Spray spilled primers with a water/detergent mixture. Do not allow primers to become dry.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Projectiles from fired cartridges can cause puncture wounds. Remove cartridges from service if any of the following conditions have occurred: corrosion, physical damage, exposure to oil or spray type lubricants.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage Conditions: KEEP IN ORIGINAL CONTAINER. Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep in fireproof place.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Storage Area: Store locked up.

Specific End Use(s) Small arms primer

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Copper (7440-50-8)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.1 mg/m ³
USA IDLH	US IDLH (mg/m ³)	100 mg/m ³
Alberta	OEL TWA (mg/m ³)	1 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.2 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.2 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.2 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	0.2 mg/m ³
Nunavut	OEL STEL (mg/m ³)	2 mg/m ³
Nunavut	OEL TWA (mg/m ³)	1 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	2 mg/m ³

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Northwest Territories	OEL TWA (mg/m ³)	1 mg/m ³
Ontario	OEL TWA (mg/m ³)	1 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.2 mg/m ³
Québec	VEMP (mg/m ³)	1 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	3 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	1 mg/m ³
Yukon	OEL STEL (mg/m ³)	2 mg/m ³
Yukon	OEL TWA (mg/m ³)	1 mg/m ³
Aluminum (7429-90-5)		
Mexico	OEL TWA (mg/m ³)	10 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
Alberta	OEL TWA (mg/m ³)	10 mg/m ³
British Columbia	OEL TWA (mg/m ³)	1.0 mg/m ³
Manitoba	OEL TWA (mg/m ³)	1 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	1 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	1 mg/m ³
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³
Nunavut	OEL TWA (mg/m ³)	10 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³
Ontario	OEL TWA (mg/m ³)	1 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	1 mg/m ³
Québec	VEMP (mg/m ³)	10 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³
Antimony (7440-36-0)		
Mexico	OEL TWA (mg/m ³)	0.5 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.5 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.5 mg/m ³
USA IDLH	US IDLH (mg/m ³)	50 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	0.5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	0.5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	1.5 mg/m ³
Nunavut	OEL TWA (mg/m ³)	0.5 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	1.5 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	0.5 mg/m ³
Ontario	OEL TWA (mg/m ³)	0.5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.5 mg/m ³
Québec	VEMP (mg/m ³)	0.5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	1.5 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.5 mg/m ³
Yukon	OEL STEL (mg/m ³)	0.75 mg/m ³
Yukon	OEL TWA (mg/m ³)	0.5 mg/m ³

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Barium (7440-39-3)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	0.5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	0.5 mg/m ³
Ontario	OEL TWA (mg/m ³)	0.5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	1.5 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.5 mg/m ³
Nitroglycerin (55-63-0)		
Mexico	OEL TWA (mg/m ³)	0.5 mg/m ³
Mexico	OEL TWA (ppm)	0.05 ppm
Mexico	OEL STEL (mg/m ³)	1 mg/m ³
Mexico	OEL STEL (ppm)	0.1 ppm
USA ACGIH	ACGIH TWA (ppm)	0.05 ppm
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	2 mg/m ³
USA OSHA	OSHA PEL (Ceiling) (ppm)	0.2 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m ³)	0.1 mg/m ³
USA IDLH	US IDLH (mg/m ³)	75 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.5 mg/m ³
Alberta	OEL TWA (ppm)	0.05 ppm
British Columbia	OEL TWA (ppm)	0.05 ppm
Manitoba	OEL TWA (ppm)	0.05 ppm
New Brunswick	OEL TWA (mg/m ³)	0.46 mg/m ³
New Brunswick	OEL TWA (ppm)	0.05 ppm
Newfoundland & Labrador	OEL TWA (ppm)	0.05 ppm
Nova Scotia	OEL TWA (ppm)	0.05 ppm
Nunavut	OEL STEL (mg/m ³)	0.46 mg/m ³
Nunavut	OEL STEL (ppm)	0.05 ppm
Nunavut	OEL TWA (mg/m ³)	1.9 mg/m ³
Nunavut	OEL TWA (ppm)	0.02 ppm
Northwest Territories	OEL STEL (mg/m ³)	0.46 mg/m ³
Northwest Territories	OEL STEL (ppm)	0.05 ppm
Northwest Territories	OEL TWA (mg/m ³)	1.9 mg/m ³
Northwest Territories	OEL TWA (ppm)	0.02 ppm
Ontario	OEL TWA (ppm)	0.05 ppm
Prince Edward Island	OEL TWA (ppm)	0.05 ppm
Québec	PLAFOND (mg/m ³)	1.86 mg/m ³
Québec	PLAFOND (ppm)	0.2 ppm
Saskatchewan	OEL STEL (ppm)	0.15 ppm
Saskatchewan	OEL TWA (ppm)	0.05 ppm
Yukon	OEL STEL (mg/m ³)	2 mg/m ³
Yukon	OEL STEL (ppm)	0.2 ppm
Yukon	OEL TWA (mg/m ³)	2 mg/m ³
Yukon	OEL TWA (ppm)	0.2 ppm
Lead (7439-92-1)		
Mexico	OEL TWA (mg/m ³)	0.15 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	0.05 mg/m ³

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

USA OSHA	OSHA PEL (TWA) (mg/m ³)	50 µg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.050 mg/m ³
USA IDLH	US IDLH (mg/m ³)	100 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.05 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.05 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.05 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	0.05 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.05 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	0.05 mg/m ³
Nunavut	OEL STEL (mg/m ³)	0.45 mg/m ³
Nunavut	OEL TWA (mg/m ³)	0.15 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	0.45 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	0.15 mg/m ³
Ontario	OEL TWA (mg/m ³)	0.05 mg/m ³ (applies to workplaces to which the designated substances regulation does not apply)
Prince Edward Island	OEL TWA (mg/m ³)	0.05 mg/m ³
Québec	VEMP (mg/m ³)	0.05 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	0.15 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.05 mg/m ³
Yukon	OEL STEL (mg/m ³)	0.45 mg/m ³
Yukon	OEL TWA (mg/m ³)	0.15 mg/m ³

Nickel (7440-02-0)

Mexico	OEL TWA (mg/m ³)	1 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	1.5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	0.015 mg/m ³
USA IDLH	US IDLH (mg/m ³)	10 mg/m ³
Alberta	OEL TWA (mg/m ³)	1.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.05 mg/m ³
Manitoba	OEL TWA (mg/m ³)	1.5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	1.5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	1.5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	2 mg/m ³
Nunavut	OEL TWA (mg/m ³)	1 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	2 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	1 mg/m ³
Ontario	OEL TWA (mg/m ³)	1 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	1.5 mg/m ³
Québec	VEMP (mg/m ³)	1 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	3 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	1.5 mg/m ³
Yukon	OEL STEL (mg/m ³)	3 mg/m ³
Yukon	OEL TWA (mg/m ³)	1 mg/m ³

Barium (7440-39-3)

USA ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	0.5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.5 mg/m ³

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Nova Scotia	OEL TWA (mg/m ³)	0.5 mg/m ³
Ontario	OEL TWA (mg/m ³)	0.5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	0.5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	1.5 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.5 mg/m ³

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective goggles. Protective clothing.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: Wash contaminated clothing before reuse.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Nickel plated or brass cup.
Odor	: Not available
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Not available
Partition coefficient: n-octanol/water	: Not available
Viscosity	: Not available
Explosive properties	: Fire or projection hazard
Explosion Data – Sensitivity to Mechanical Impact	: Sensitive to mechanical impact
Explosion Data – Sensitivity to Static Discharge	: Not sensitive

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 10: STABILITY AND REACTIVITY

Reactivity: May detonate with friction, impact, and heat. WILL PROPAGATE OUTSIDE OF ORIGINAL PACKAGING.

Chemical Stability: Risk of explosion by shock, friction, fire or other sources of ignition.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Heat. Sparks. Open flame. Overheating. Extremely high or low temperatures. Direct sunlight.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Hazardous Decomposition Products: None known.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Fatal if swallowed. Fatal if inhaled.

LD50 and LC50 Data:

Rifle/Pistol Primers	
ATE US (oral)	5.00 mg/kg body weight
ATE US (dermal)	50.00 mg/kg body weight
ATE US (dust, mist)	0.05 mg/l/4h

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: May damage fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Fatal if inhaled.

Symptoms/Injuries After Skin Contact: May cause skin irritation.

Symptoms/Injuries After Eye Contact: May cause eye irritation.

Symptoms/Injuries After Ingestion: Fatal if swallowed.

Chronic Symptoms: May damage fertility. May damage the unborn child. May cause damage to organs through prolonged or repeated exposure.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Barium (7440-39-3)	
LD50 Oral Rat	132 mg/kg
1,3-Benzenediol, 2,4,6-trinitro-, lead salt (15245-44-0)	
ATE US (oral)	500.00 mg/kg body weight
ATE US (dust, mist)	1.50 mg/l/4h
Nickel (7440-02-0)	
LD50 Oral Rat	> 9000 mg/kg
Nitroglycerin (55-63-0)	
LD50 Oral Rat	105 mg/kg
LD50 Dermal Rabbit	> 280 mg/kg
ATE US (dust, mist)	0.05 mg/l/4h
Antimony (7440-36-0)	
LD50 Oral Rat	100 mg/kg
Nickel (7440-02-0)	
IARC Group	2B
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Lead (7439-92-1)	
IARC Group	2A
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: The ecotoxicological information applies to the materials encased within the product..

Zinc (7440-66-6)	
LC50 Fish 1	2.16 - 3.05 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	0.139 - 0.908 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC 50 Fish 2	0.211 - 0.269 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])

Copper (7440-50-8)	
LC50 Fish 1	0.0068 - 0.0156 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.03 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 1	0.0426 - 0.0535 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [static])
LC 50 Fish 2	0.3 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Other Aquatic Organisms 2	0.031 - 0.054 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

Lead (7439-92-1)	
LC50 Fish 1	0.44 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 1	600 µg/l (Exposure time: 48 h - Species: water flea)
LC 50 Fish 2	1.17 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])

Nickel (7440-02-0)	
LC50 Fish 1	100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
EC50 Daphnia 1	100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 Other Aquatic Organisms 2	0.174 - 0.311 mg/l (Exposure time: 96 h - Species: Pseudokirchneriella subcapitata [static])

Nitroglycerin (55-63-0)	
LC50 Fish 1	0.87 - 3.25 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	46 - 55 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	0.87 - 2.21 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 2	38 - 55 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Persistence and Degradability

Rifle/Pistol Primers	
Persistence and Degradability	Not established. May cause long-term adverse effects in the environment.

Copper (7440-50-8)	
Persistence and Degradability	Not readily biodegradable.

Bioaccumulative Potential

Rifle/Pistol Primers	
Bioaccumulative Potential	Not established.

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Ecology – Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

The environmentally hazardous substance mark is not required when transported in sizes of .5 L or ≤5 kg.

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Proper Shipping Name : PRIMERS, CAP TYPE
Hazard Class : 1.4S
Identification Number : UN0044
Label Codes : 1.4S
Packing Group : II
ERG Number : 114



14.2 In Accordance with IMDG

Proper Shipping Name : PRIMERS, CAP TYPE
Hazard Class : 1
Identification Number : UN0044
Label Codes : 1.4S
EmS-No. (Fire) : F-B
EmS-No. (Spillage) : S-X
MFAG Number : 114



14.3 In Accordance with IATA

Proper Shipping Name : PRIMERS, CAP TYPE
Identification Number : UN0044
Hazard Class : 1
Label Codes : 1.4S
ERG Code (IATA) : 1L



14.4 In Accordance with TDG

Proper Shipping Name : PRIMERS, CAP TYPE
Packing Group : II
Hazard Class : 1.4S
Identification Number : UN0044
Label Codes : 1.4S



SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Small Arms Primers	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard Sudden release of pressure hazard
Zinc (7440-66-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)
Nickel (7440-02-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
RQ (Reportable Quantity, Section 304 of EPA's List of Lists):	100 lb (only applicable if particles are < 100 µm)
SARA Section 313 - Emission Reporting	0.1 %
Aluminum (7429-90-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 % (dust or fume only)
1-Tetrazene-1-carboximidic acid, 4-(aminoiminomethyl)-, 2-nitrosohydrazide (109-27-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Antimony (7440-36-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Lead, dihydroxy[2,4,6-trinitro-1,3-benzenediolato(2-)]di- (12403-82-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Nitrocellulose (9004-70-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Lead (7439-92-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	0.1 %
Copper (7440-50-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %
Nitroglycerin (55-63-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %
Barium (7440-39-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %
US State Regulations	
Nickel (7440-02-0)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
Lead (7439-92-1)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
U.S. - California - Proposition 65 - Developmental Toxicity	WARNING: This product contains chemicals known to the State of California to cause birth defects.
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	WARNING: This product contains chemicals known to the State of California to cause (Female) reproductive harm.
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	WARNING: This product contains chemicals known to the State of California to cause (Male) reproductive harm.
Lead (7439-92-1)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Nickel (7440-02-0)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances	
U.S. - Pennsylvania - RTK (Right to Know) List	
Antimony (7440-36-0)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) List	




Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Aluminum (7429-90-5)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	
Zinc (7440-66-6)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	
Nitrocellulose (9004-70-0)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List	
Copper (7440-50-8)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	
Nitroglycerin (55-63-0)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	
Barium (7440-39-3)	
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List	

Canadian Regulations

Small Arms Primers	
WHMIS Classification	Class B Division 6 - Reactive Flammable Material Class B Division 4 - Flammable Solid Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class F - Dangerously Reactive Material Note: Explosives are not regulated under WHMIS. They are subject to the regulations of the Explosives Act of Canada.
  	

Zinc (7440-66-6)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
Nickel (7440-02-0)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
IDL Concentration 0.1 %	

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Nitrocellulose (9004-70-0)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Note: Explosives are not regulated under WHMIS. They are subject to the regulations of the Explosives Act of Canada.
Lead (7439-92-1)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
IDL Concentration 0.1 %	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects
Lead, dihydroxy[2,4,6-trinitro-1,3-benzenediolato(2-)]di- (12403-82-6)	
Listed on Non-Domestic Substances List (NDSL)	
Aluminum (7429-90-5)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
IDL Concentration 1 %	
WHMIS Classification	Class B Division 6 - Reactive Flammable Material Class B Division 4 - Flammable Solid
Antimony (7440-36-0)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
IDL Concentration 1 %	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
1-Tetrazene-1-carboximidic acid, 4-(aminoiminomethyl)-, 2-nitrosohydrazide (109-27-3)	
Listed on Non-Domestic Substances List (NDSL)	
Copper (7440-50-8)	
Listed on the Canadian DSL (Domestic Substances List) Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
Nitroglycerin (55-63-0)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Note: Explosives are not regulated under WHMIS. They are subject to the regulations of the Explosives Act of Canada.
Barium (7440-39-3)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Class B Division 6 - Reactive Flammable Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 02/09/2015
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral) Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3

Rifle, Pistol Primers – Federal

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Comb. Dust	Combustible Dust
Expl. 1.4	Explosive Category 1.4
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Sol. 1	Flammable solids Category 1
Repr. 1A	Reproductive toxicity Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
Water-react. 2	Substances and mixtures which in contact with water emit flammable gases Category 2
H204	Fire or projection hazard
H228	Flammable solid
Comb. Dust	May form combustible dust concentrations in air
H261	In contact with water releases flammable gases
H300	Fatal if swallowed
H301	Toxic if swallowed
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

Party Responsible for the Preparation of This Document

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS 2