

Safety Data Sheet



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name

- VOR-TX Rifle, VOR-TX Blackout, VOR-TX Metric, VOR-TX Handgun, VOR-TX Safari

1.2 Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified use(s)
- Long range shooting, target shooting, hunting

1.3 Details of the supplier of the safety data sheet

Manufacturer

- Barnes Bullets
PO Box 620
Mona, UT 84645
United States
www.barnesbullets.com
email@barnesbullets.com

Telephone (General) • (435) 856-1000

1.4 Emergency telephone number

- Manufacturer
- (435) 856-1000

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]

2.1 Classification of the substance or mixture

CLP

- Explosives 1.4 - H204
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335
Reproductive Toxicity 1A - H360

2.2 Label Elements

CLP

DANGER



- Hazard statements
- H204 - Fire or projection hazard
 - H335 - May cause respiratory irritation
 - H360 - May damage fertility or the unborn child.

Precautionary statements

- Prevention
- P201 - Obtain special instructions before use.

- P202 - Do not handle until all safety precautions have been read and understood.
- P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
- P240 - Ground and/or bond container and receiving equipment.
- P250 - Do not subject to grinding/shock/friction.
- P261 - Avoid breathing dust or fume.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear face protection .
- P281 - Use personal protective equipment as required.

- Response** • P370+P380 - In case of fire: Evacuate area.
- P373 - DO NOT fight fire when fire reaches explosives.
- P374 - Fight fire with normal precautions from a reasonable distance.
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
- P308+P313 - IF exposed or concerned: Get medical advice/attention.

- Storage/Disposal** • P401 - Store in accordance with local, regional, national, and/or international regulations.
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P405 - Store locked up.
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other Hazards

CLP

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Explosives 1.4
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
- Reproductive Toxicity 1A
- Hazards Not Otherwise Classified - Health Hazard - Metal fume fever

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements** • Fire or projection hazard
- May cause respiratory irritation
- May damage fertility or the unborn child.

Precautionary statements

- Prevention** • Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
- Ground and/or bond container and receiving equipment.
- Do not subject to grinding/shock/friction.
- Avoid breathing dust or fume.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.

- Response** • In case of fire: Evacuate area.
- DO NOT fight fire when fire reaches explosives.
- Fight fire with normal precautions from a reasonable distance.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for

breathing.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 IF exposed or concerned: Get medical advice/attention.

- Storage/Disposal**
- Store in accordance with local, regional, national, and/or international regulations. Store in a well-ventilated place. Keep container tightly closed. Store locked up.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Other Toxic Effects - D2A

2.2 Label elements

WHMIS



- Other Toxic Effects - D2A

2.3 Other hazards

WHMIS

- Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance.

3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Copper	CAS:7440-50-8 EC Number:231-159-6	65% TO 78%	NDA	EU CLP: STOT SE 3: Resp. Irrit., H335; OSHA HCS 2012: Comb. Dust; STOT SE 3: Resp. Irrit.	NDA
Zinc	CAS:7440-66-6 EC Number:231-175-3 EU Index:030-	10% TO 18%	NDA	EU CLP: Not Classified OSHA HCS 2012: Comb. Dust; Hazard Not Otherwise Classified - Health Hazard - Metal fume fever	NDA

	001-00-1				
Nitrate cellulose	CAS: 9004-70-0 EU Index: 603-037-00-6	7% TO 16%	Ingestion/Oral-Rat LD50 • >5 g/kg	EU CLP: Expl. 1.1, H201 OSHA HCS 2012: Expl. 1.1	NDA
Nitroglycerin	CAS: 55-63-0 EC Number: 200-240-8	0% TO 3%	Ingestion/Oral-Rat LD50 • 105 mg/kg Skin-Rabbit LD50 • >280 mg/kg	EU CLP: Annex VI, Table 3.1: Expl. 1.1, H201; Acute Tox. 2 *, H330; Acute Tox. 1, H310; Acute Tox. 2 *, H300; STOT RE 2 *, H373; Aquatic Chronic 2, H411 OSHA HCS 2012: Expl. 1.1; Acute Tox. 3 (Orl); Eye Irrit. 2; Skin Sens. 1	NDA
Toluene, 2,4-dinitro-	CAS: 121-14-2 EC Number: 204-450-0 EU Index: 609-007-00-9	0% TO 2%	Ingestion/Oral-Rat LD50 • 268 mg/kg	EU CLP: Annex VI, Table 3.1: Carc. 1B, H350; Muta. 2, H341; Repr. 2, H361f ***; Acute Tox. 3 *, H331; Acute Tox. 3 *, H311; Acute Tox. 3 *, H301; STOT RE 2 *, H373 **; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 OSHA HCS 2012: Comb. Dust; Acute Tox. 4 (Orl); STOT RE 2 (Kidney); Carc. 2; Muta. 2	NDA
Dibutyl phthalate	CAS: 84-74-2 EC Number: 201-557-4 EU Index: 607-318-00-4	0% TO 1%	Ingestion/Oral-Rat LD50 • 7499 mg/kg Inhalation-Rat LC50 • 4250 mg/m ³ Skin-Rabbit LD50 • >20 mL/kg	EU CLP: Annex VI, Table 3.1: Repr. 1B, H360Df (Oral); Aquatic Acute 1, H400 (M=1) OSHA HCS 2012: Repr. 1B (Orl); STOT SE 3: Narc.; STOT SE 3: Resp. Irrit. (Orl, Inhl)	NDA
Diphenylamine	CAS: 122-39-4 EC Number: 204-539-4 EU Index: 612-026-00-5	< 1%	Ingestion/Oral-Rat LD50 • 1120 mg/kg	EU CLP: Annex VI, Table 3.1: Acute Tox. 3 *, H331; Acute Tox. 3 *, H311; Acute Tox. 3 *, H301; STOT RE 2 *, H373 **; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 OSHA HCS 2012: Carc. 2; Muta. 2; Repr. 2; Acute Tox. 3, orl;	NDA
Carbon	CAS: 7440-44-0 EC Number: 231-153-3	< 1%	NDA	EU CLP: Not Classified OSHA HCS 2012: Comb. Dust	NDA
Barium(II) nitrate (1:2)	CAS: 10022-31-8 EINECS: 233-020-5	< 0.2%	Ingestion/Oral-Rat LD50 • 355 mg/kg	EU CLP: Ox. Sol. 2, H272; STOT RE 1, H372; Acute Tox. 4, H302; Eye Irrit. 2, H319 OSHA HCS 2012: Ox. Sol. 2; STOT RE 1 (PNS); Acute Tox. 4 (Orl); Eye Irrit. 2	NDA
2,4,6-Trinitro-1,3-benzenediol lead salt	CAS: 15245-44-0 EC Number: 239-290-0	< 0.2%	NDA	EU CLP: Annex VI, Table 3.1: Expl. 1.1., H201; Repr. 1A, H306Df; Acute Tox. 4 *, H302; STOT RE 2 *, H373***; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 OSHA HCS 2012: Expl. 1.1; Repr. 1A; STOT RE 1 (Liver, Kidney, Blood, Nervous System);	NDA
Antimony trisulfide	CAS: 1345-04-6 EINECS: 215-713-4	< 0.1%	NDA	EU CLP: Community workplace exposure limit OSHA HCS 2012: Exposure limits	NDA

See Section 16 for full text of H-statements.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If signs/symptoms develop, move person to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

- Skin**
 - First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Wash skin with soap and water. Get medical attention if symptoms occur.
- Eye**
 - First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Remove contact lenses if worn. Flush eyes with water for at least 15 minutes. Get medical attention if symptoms occur.
- Ingestion**
 - First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Give plenty of water to drink. Induce vomiting (only in conscious persons) Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician**
- No specific actions or treatments recommended related to exposure to this material.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media • Water, carbon dioxide, dry chemical, earth.

Unsuitable Extinguishing Media • No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- May ignite if heated above 130°C
Will ignite when exposed to flame and high temperatures.
Be cautious of low-energy fragments.
Packages bearing the 1.4S label or packages containing material classified as 1.4S are designed or packaged in such a manner that when involved in a fire, may burn vigorously with localized detonations and projection of fragments.
Effects are usually confined to immediate vicinity of packages.

Hazardous Combustion Products

- No data available

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighters' protective clothing will only provide limited protection.
Flood fire with water to fight fire and cool shells. If no water is available, use carbon dioxide, dry chemical or earth.
Fight fire with normal precautions from a reasonable distance.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not walk through spilled material. Do not strike or crush the rounds.

Emergency Procedures

- Eliminate all ignition sources. If fire threatens cargo area containing packages bearing the 1.4S label or packages containing material classified as 1.4S, consider isolating at least 15 meters (50 feet) in all directions. In fire situations move people out of line of site of the scene and away from windows. Use normal clean up procedures.

6.2 Environmental precautions

- No special environmental precautions necessary.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Use clean nonsparking tools to collect material.
Carefully shovel or sweep up spilled material and place in suitable container.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Handle with care. Do not strike or crush the rounds. Avoid breathing dust or fume. Use personal protective equipment as required. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Keep only in the original container. Store in a cool, dry, well-ventilated place. Keep away from sources of ignition – No Smoking. Do not subject to mechanical shock. Keep out of reach of children. This product must not be stored with acids, strong oxidizers or caustics.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines				
	Result	ACGIH	NIOSH	OSHA
Nitroglycerin (55-63-0)	Ceilings	Not established	Not established	0.2 ppm Ceiling; 2 mg/m ³ Ceiling
	TWAs	0.05 ppm TWA	Not established	Not established
	STELs	Not established	0.1 mg/m ³ STEL	Not established
Dibutyl phthalate (84-74-2)	TWAs	5 mg/m ³ TWA	5 mg/m ³ TWA	5 mg/m ³ TWA
Antimony trisulfide	TWAs	0.5 mg/m ³ TWA (as Sb) <i>as Antimony compounds</i>	0.5 mg/m ³ TWA (as Sb) <i>as Antimony compounds</i>	0.5 mg/m ³ TWA (as Sb) <i>as Antimony compounds</i>
2,4,6-Trinitro-1,3-benzenediol lead salt	TWAs	Not established	0.050 mg/m ³ TWA (as Pb) <i>as Lead compounds</i>	Not established
Barium(II) nitrate (1:2) (10022-31-8)	TWAs	Not established	0.5 mg/m ³ TWA (as Ba)	Not established
Diphenylamine (122-39-4)	TWAs	10 mg/m ³ TWA	10 mg/m ³ TWA	Not established
Copper (7440-50-8)	TWAs	0.2 mg/m ³ TWA (fume)	1 mg/m ³ TWA (dust and mist); 0.1 mg/m ³ TWA (fume)	0.1 mg/m ³ TWA (fume); 1 mg/m ³ TWA (dust and mist)

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved

- respirator if exposure limits are exceeded or symptoms are experienced.
- Eye/Face**
 - Wear safety glasses.
- Skin/Body**
 - Wear protective clothing
- Environmental Exposure Controls**
 - Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.
- Additional Protection Measures**
 - Hearing protection recommended when firing rounds.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
 NIOSH = National Institute of Occupational Safety and Health
 OSHA = Occupational Safety and Health Administration

STEL = Short Term Exposure Limits are based on 15-minute exposures
 TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Solid
Color	Variable	Odor	Data lacking
Odor Threshold	Data lacking		
General Properties			
Boiling Point	Data lacking	Melting Point/Freezing Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Water Solubility	Negligible < 0.1 %
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Flames, sparks, percussion, shock, static, high temperatures (266°F or 130°C, or above)

10.5 Incompatible materials

- No data available

10.6 Hazardous decomposition products

- No data available

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Copper (65% TO 78%)	7440-50-8	<p>Acute Toxicity: Ingestion/Oral-Mouse TDLo • 108 mg/kg; <i>Behavioral:</i>Tremor; <i>Gastrointestinal:</i>Hypermotility, diarrhea; <i>Gastrointestinal:</i>Nausea or vomiting; Ingestion/Oral-Mouse TDLo • 158 mg/kg; <i>Kidney, Ureter, and Bladder:</i>Changes in tubules (including acute renal failure, acute tubular necrosis); Ingestion/Oral-Mouse TDLo • 232 mg/kg; <i>Kidney, Ureter, and Bladder:</i>Changes primarily in glomeruli; <i>Blood:</i>Changes in spleen; <i>Blood:</i>Changes in serum composition (e.g., TP, bilirubin cholesterol);</p> <p>Multi-dose Toxicity: Ingestion/Oral-Rabbit TDLo • 3 g/kg 60 Day(s)-Continuous; <i>Cardiac:</i>Other changes; <i>Liver:</i>Hepatitis (hepatocellular necrosis), zonal; <i>Related to Chronic Data:</i>Death in the Other Multiple Dose data type field;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 1520 µg/kg (22W pre); <i>Reproductive Effects:</i>Specific Developmental Abnormalities:Musculoskeletal system; Ingestion/Oral-Rat TDLo • 152 mg/kg (22W pre); <i>Reproductive Effects:</i>Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); <i>Reproductive Effects:</i>Specific Developmental Abnormalities:Central nervous system; Ingestion/Oral-Rat TDLo • 1210 µg/kg (35W pre); <i>Reproductive Effects:</i>Effects on Fertility:Pre-implantation mortality; <i>Reproductive Effects:</i>Effects on Fertility:Post-implantation mortality;</p> <p>Tumorigen / Carcinogen: Ingestion/Oral-Mouse TDLo • 10.08 mg/kg 12 Week(s)-Continuous; <i>Tumorigenic:</i>Carcinogenic by RTECS criteria; <i>Lungs, Thorax, or Respiration:</i>Other changes</p>
Zinc (10% TO 18%)	7440-66-6	<p>Irritation: Skin-Human • 300 µg 3 Day(s)-Intermittent • Mild irritation;</p> <p>Tumorigen / Carcinogen: Ingestion/Oral-Mouse TDLo • 12.6 mg/kg 46 Week(s)-Continuous; <i>Tumorigenic:</i>Carcinogenic by RTECS criteria; <i>Gastrointestinal:</i>Tumors; <i>Tumorigenic:</i>Facilitates action of known carcinogen</p>
Barium(II) nitrate (1:2) (< 0.2%)	10022-31-8	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 355 mg/kg; Ingestion/Oral-Man TDLo • 83 mg/kg; <i>Peripheral Nerve and Sensation:</i>Paresthesia; <i>Behavioral:</i>Muscle weakness; <i>Nutritional and Gross Metabolic:</i>Changes in Chemistry or Temperature:K;</p> <p>Irritation: Eye-Rabbit • 100 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation</p>
Nitroglycerin (0% TO 3%)	55-63-0	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 105 mg/kg; <i>Behavioral:</i>Somnolence (general depressed activity); Ingestion/Oral-Woman TDLo • 5 mg/kg; <i>Behavioral:</i>General anesthetic; <i>Cardiac:</i>Other changes; <i>Kidney, Ureter, and Bladder:</i>Incontinence; Skin-Rabbit LD50 • >280 mg/kg;</p> <p>Irritation: Eye-Rabbit • 0.1 mL; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p> <p>Reproductive: Skin-Rat TDLo • 3640 mg/kg (17-21D preg/21D post); <i>Reproductive Effects:</i>Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); <i>Reproductive Effects:</i>Effects on Newborn:Viability index (e.g., # alive at day 4 per # born alive);</p> <p>Tumorigen / Carcinogen: Ingestion/Oral-Rat TDLo • 240170 mg/kg 2 Year(s)-Intermittent; <i>Tumorigenic:</i>Equivocal tumorigenic agent by RTECS criteria; <i>Liver:</i>Tumors; <i>Tumorigenic:</i>Increased incidence of tumors in susceptible strains</p>
Nitrate cellulose (7% TO 16%)	9004-70-0	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • >5 g/kg</p>
		<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 7499 mg/kg; Ingestion/Oral-Human TDLo • 140 mg/kg; <i>Behavioral:</i>Hallucinations, distorted perceptions; <i>Gastrointestinal:</i>Nausea or vomiting; <i>Kidney, Ureter, and Bladder:</i>Other changes; Ingestion/Oral-Rat TDLo • 52 mg/kg; <i>Behavioral:</i>Somnolence (general depressed activity); <i>Lungs, Thorax, or Respiration:</i>Dyspnea; <i>Lungs, Thorax, or Respiration:</i>Respiratory depression; Skin-Rabbit LD50 • >20 mL/kg;</p>

Dibutyl phthalate (0% TO 1%)	84-74-2	<p>Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 3750 mg/kg 15 Day(s)-Intermittent; Endocrine:Evidence of thyroid hypofunction; Ingestion/Oral-Rat TDLo • 7500 mg/kg 15 Day(s)-Intermittent; Liver:Changes in liver weight; Endocrine:Evidence of thyroid hypofunction;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 23 mg/kg (15-22D preg/15D post); Reproductive Effects:Specific Developmental Abnormalities:Urogenital system; Ingestion/Oral-Rat TDLo • 3500 mg/kg (13-19D preg); Reproductive Effects:Specific Developmental Abnormalities:Endocrine system; Ingestion/Oral-Rat TDLo • 5000 mg/kg (14-18D preg); Reproductive Effects:Effects on Embryo or Fetus:Fetal death; Ingestion/Oral-Rat TDLo • 4000 mg/kg (6-15D preg); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</p>
Diphenylamine (< 1%)	122-39-4	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 1120 mg/kg; Behavioral:Somnolence (general depressed activity); Lungs, Thorax, or Respiration:Respiratory depression; Blood:Metheinglobincinia-Carboxyhemoglobin; Skin-Rabbit LD50 • >5000 mg/kg;</p> <p>Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 2400 mg/kg 3 Day(s)-Intermittent; Kidney, Ureter, and Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis); Kidney, Ureter, and Bladder:Interstitial nephritis; Kidney, Ureter, and Bladder:Other changes; Ingestion/Oral-Rat TDLo • 25 mg/kg 30 Day(s)-Intermittent; Gastrointestinal:Alteration in gastric secretion; Kidney, Ureter, and Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis); Kidney, Ureter, and Bladder:Proteinuria;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 7500 mg/kg (17-22D preg); Reproductive Effects:Specific Developmental Abnormalities:Urogenital system</p>
Toluene, 2,4-dinitro- (0% TO 2%)	121-14-2	<p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 268 mg/kg;</p> <p>Irritation: Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p> <p>Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 273 mg/kg 70 Day(s)-Intermittent; Nutritional and Gross Metabolic:Gross Metabolite Changes:Weight loss or decreased weight gain;</p> <p>Mutagen: Unscheduled DNA synthesis • Ingestion/Oral-Rat • 35 mg/kg; Micronucleus test • Ingestion/Oral-Rat • 150 mg/kg 2 Day(s)-Intermittent;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 2380 mg/kg (70D male); Reproductive Effects:Paternal Effects:Spermatogenesis; Reproductive Effects:Paternal Effects:Prostate, seminal vesicle, Cowper's gland, accessory glands; Ingestion/Oral-Rat TDLo • 8463 mg/kg (13W male); Reproductive Effects:Paternal Effects:Spermatogenesis;</p> <p>Tumorigen / Carcinogen: Ingestion/Oral-Mouse TDLo • 10080 mg/kg 2 Year(s)-Continuous; Tumorigenic:Carcinogenic by RTECS criteria; Kidney, Ureter, and Bladder:Kidney tumors; Ingestion/Oral-Rat TDLo • 2620 mg/kg 78 Week(s)-Continuous; Tumorigenic:Neoplastic by RTECS criteria; Skin and Appendages:Other:Tumors</p>

GHS Properties	Classification
Respiratory sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Serious eye damage/Irritation	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Acute toxicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Aspiration Hazard	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Carcinogenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Skin corrosion/Irritation	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Skin sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
STOT-RE	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
	EU/CLP • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation

STOT-SE	OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
Toxicity for Reproduction	EU/CLP • Toxic to Reproduction 1A OSHA HCS 2012 • Toxic to Reproduction 1A
Germ Cell Mutagenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking

Potential Health Effects

Inhalation

- Acute (Immediate)**
 - Inhalation of dust or fumes may cause irritation to nose, throat, upper respiratory tract and lungs. Irritation may lead to bronchitis, headache, lowering of blood pressure and weakness.
- Chronic (Delayed)**
 - No data available

Skin

- Acute (Immediate)**
 - May cause allergic reaction (sensitization) in susceptible individuals.
- Chronic (Delayed)**
 - No data available

Eye

- Acute (Immediate)**
 - Dust and fumes can irritate the eyes causing redness and discharge.
- Chronic (Delayed)**
 - No data available

Ingestion

- Acute (Immediate)**
 - Ingestion is not anticipated to be a likely route of exposure to this product.
- Chronic (Delayed)**
 - No data available

Carcinogenic Effects

- This product is not classified a carcinogen by IARC, OSHA, NTP or EPA. However, there are some components that are carcinogens according to these agencies.

Carcinogenic Effects		
	CAS	IARC
Toluene, 2,4-dinitro-	121-14-2	Group 2B-Possible Carcinogen

- Reproductive Effects**
 - Repeated and prolonged exposure may cause reproductive effects.

Key to abbreviations

LD = Lethal Dose
TC = Toxic Concentration
TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

- Product waste** • No data available
- Packaging waste** • No data available

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN0014	Cartridges, Small Arms	1.4S	II	NDA
TDG	UN0014	CARTRIDGES, SMALL ARMS	1.4S	II	NDA
IMO/IMDG	UN0014	CARTRIDGES, SMALL ARMS	1.4S	II	NDA
IATA/ICAO	UN0014	Cartridges, Small Arms	1.4S	II	NDA

- 14.6 Special precautions for user** • None specified.

- 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** • Data lacking.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- SARA Hazard Classifications** • Acute, Chronic, Pressure(Sudden Release of)

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	TSCA
2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Yes	No	Yes	No	Yes
Antimony trisulfide	1345-04-6	Yes	No	Yes	No	Yes
Barium(II) nitrate (1:2)	10022-31-8	Yes	No	Yes	No	Yes
Carbon	7440-44-0	Yes	No	Yes	No	Yes
Copper	7440-50-8	Yes	No	Yes	No	Yes
Dibutyl phthalate	84-74-2	Yes	No	Yes	No	Yes
Diphenylamine	122-39-4	Yes	No	Yes	No	Yes
Nitrate cellulose	9004-70-0	Yes	No	No	No	Yes
Nitroglycerin	55-63-0	Yes	No	Yes	No	Yes
Toluene, 2,4-dinitro-	121-14-2	Yes	No	Yes	No	Yes

Zinc	7440-66-6	Yes	No	Yes	No	Yes
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Canada

Labor

Canada - WHMIS - Classifications of Substances

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Uncontrolled product according to WHMIS classification criteria
• Antimony trisulfide	1345-04-6	Uncontrolled product according to WHMIS classification criteria
• Toluene, 2,4-dinitro-	121-14-2	D1A, D2A, D2B
• Copper	7440-50-8	Uncontrolled product according to WHMIS classification criteria
• Barium(II) nitrate (1:2)	10022-31-8	C, D1A, D2B
• Dibutyl phthalate	84-74-2	D2A (listed under n-Dibutyl phthalate)
• Diphenylamine	122-39-4	Uncontrolled product according to WHMIS classification criteria
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	B4, F

Canada - WHMIS - Ingredient Disclosure List

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	1 %
• Copper	7440-50-8	1 %
• Barium(II) nitrate (1:2)	10022-31-8	1 %
• Dibutyl phthalate	84-74-2	1 %
• Diphenylamine	122-39-4	0.1 %
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Priority Substance List 1 (substance not considered toxic)
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	2500 lb TQ (concentration >12.6% Nitrogen)

U.S. - OSHA - Specifically Regulated Chemicals

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Nitroglycerin	55-63-0	10 lb final RQ; 4.54 kg final RQ
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	10 lb final RQ; 4.54 kg final RQ 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the

• Copper	7440-50-8	solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	10 lb final RQ; 4.54 kg final RQ
• Diphenylamine	122-39-4	Not Listed
		454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed

• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Nitroglycerin	55-63-0	1.0 % de minimis concentration
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	0.1 % de minimis concentration
• Copper	7440-50-8	1.0 % de minimis concentration
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	1.0 % de minimis concentration
• Diphenylamine	122-39-4	1.0 % de minimis concentration
• Zinc	7440-66-6	1.0 % de minimis concentration (dust or fume only)
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	carcinogen, initial date 7/1/88
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	developmental toxicity, initial date 12/2/05
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	8.7 µg/day MADL
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	2 µg/day NSRL
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	Not Listed
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	Not Listed
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	female reproductive toxicity, initial date 12/2/05
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Nitroglycerin	55-63-0	Not Listed
• 2,4,6-Trinitro-1,3-benzenediol lead salt	15245-44-0	Not Listed
• Carbon	7440-44-0	Not Listed
• Antimony trisulfide	1345-04-6	Not Listed
• Toluene, 2,4-dinitro-	121-14-2	male reproductive toxicity, initial date 8/20/99
• Copper	7440-50-8	Not Listed
• Barium(II) nitrate (1:2)	10022-31-8	Not Listed
• Dibutyl phthalate	84-74-2	male reproductive toxicity, initial date 12/2/05
• Diphenylamine	122-39-4	Not Listed
• Zinc	7440-66-6	Not Listed
• Nitrate cellulose	9004-70-0	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

- **WARNING:** This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H201 - Explosive; mass explosion hazard
- H272 - May intensify fire; oxidizer
- H300 - Fatal if swallowed
- H301 - Toxic if swallowed
- H302 - Harmful if swallowed
- H310 - Fatal in contact with skin
- H311 - Toxic in contact with skin
- H319 - Causes serious eye irritation
- H330 - Fatal if inhaled
- H331 - Toxic if inhaled
- H341 - Suspected of causing genetic defects.
- H350 - May cause cancer.
- H360Df - May damage the unborn child. Suspected of damaging fertility.
- H361f - Suspected of damaging fertility.
- H372 - Causes damage to organs through prolonged or repeated exposure.
- 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

Revision Date

- 10/November/2015

Preparation Date

- 10/November/2015

Disclaimer/Statement of Liability

- The information herein is given in good faith but no warranty, expressed or implied, is made.

Key to abbreviations

NDA = No Data Available