MATERIAL SAFETY DATA SHEET

MANUFACTURER	**GENERAL DYNAMICS ORDNANCE AND TACTICAL SYSTEMS – CANADA INC.** 5, Montée des Arsenaux Le Gardeur, Québec, Canada J5Z 2P4
EMERGENCY PHONE NUMBER:	1-888-922-3330 (Canada/U.S.A.) 1-514-981-5228 (International)
EMERGENCY RESPONSE PLAN:	**ERP2-1388**
MATERIAL:	**CARTRIDGE, 7.62 MM, SRTA-T**
ISSUE DATE:	July, 2007

SECTION #1: PRODUCT INFORMATION	
Product Family:	**CARTRIDGE, 7.62 MM SRTA-T**
Proper Shipping Name :	**CARTRIDGES FOR WEAPONS, INERT PROJECTILE; or CARTRIDGES, SMALL ARMS**
Class:	**1.4S, UN0012**

SECTION # 2: HAZARDOUS INGREDIENTS

COMPONENTS	%	CAS NUMBER	LD_{50} OF MATERIAL (SPECIES AND ROUTE)	LC_{50} OF MATERIAL (SPECIES)
Cartridge case				
Copper	44	7440-50-8	Not established	Not established
Zinc	19	7440-66-6	Not established	Not established
Projectile				
Copper	15	7440-50-8	Not established	Not established
Nylon	2	7440-66-6	Not established	Not established
Binder (including titanium dioxyde)	4	13463-67-7	Not established	Not established
Barium peroxyde	0.1-1	1304-29-6	50 mg/kg scu. mouse	Not established
Magnesium	<0.1	7439-95-4	Not established	Not established
Propellant				
Nitrocellulose	15	9004-70-0	Not established	Not established
Graphite	0.1-1	7782-42-5	Not established	Not established
Potassium sulphate	0.1-1	7778-80-5	6600 mg/kg oral rat	Not established
Diphenylamine	0.1-1	122-39-4	300 mg/kg oral guinea pig	Not established

SECTION # 2: HAZARDOUS INGREDIENTS

COMPONENTS	%	CAS NUMBER	LD_{50} OF MATERIAL (SPECIES AND ROUTE)	LC_{50} OF MATERIAL (SPECIES)
Primer				
Lead styphnate	0.1-1	15245-44-0	Not established	Not established
Tetrazene	<0.1	31330-63-9	Not established	Not established
Antimony trisulfide	<0.1	1345-04-6	209 mg/kg ipr mouse	Not established
Barium nitrate	0.1-1	10022-31-08	355 mg/kg oral rat	Not established
Aluminium powder	<0.1	7429-90-5	Not established	Not established
Pentaerythriotol (PETN)	<0.1	115-77-5	25500 mg/kg oral mouse	Not established

SECTION # 3: PHYSICAL DATA

PHYSICAL DATA:

Boiling Point:	Not Applicable
Melting Point:	Not Applicable
Vapor Pressure:	Not Applicable
Solubility (Water)	None
Evaporation Rate:	Not Applicable
Percent Volatile:	Not Applicable
Vapor Density (AIR-1)	Not Applicable
Bulk Density:	Not Applicable
Appearance	Small caliber cartridge, all brass
Odor:	None
Odor Threshold	None
Flammable:	Yes (propellant)
Pyrophoric:	Not established
Explosive:	Yes (primer)
Unstable:	No
Water Reactive:	Yes (primer)

SECTION # 4: FIRE & EXPLOSION DATA	
Flash Point:	Not Established
Auto Ignition Temperature:	120°C (250°F) (primer formulation)
Upper Explosive Limits (%):	Not Established
Lower Explosive Limits (%):	Not Established

Fire and Explosion Hazards:

May ignite if heated to 120°C (250°F) independent of air.

Unconfined ignited cartridges can produce low velocity metallic fragments which may cause eye injury or superficial skin wounds if unprotected by standard firefighter turnout gear.

Fire may produce irritating, corrosive and/or toxic gases.

Extinguishing Media:	Water

CARGO FIRES

Packages bearing the 1.4S label or packages containing material classified as 1.4S are designed or packaged in such 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.

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. Fight fire with normal precautions from a reasonable distance.

Tire or vehicle fires:

Use plenty of water - FLOOD it! If water is not available, use CO2, dry chemical or dirt.

If possible, and WHITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area.

Pay special attention to the tire fires as re-ignition may occur. Stand by with extinguisher ready.

Evacuation

Large spill: Consider initial evacuation for 50 meters (150 feet) in all direction.

The evacuation radius will vary according to atmospheric conditions.

Supplemental Information:

Transportation Emergencies: Contact MD-UN at 1-888-922-3330 (Canada/U.S.A) or 1-514-981-5228 (International). Consult the Transport Canada (DOT) Response Guide book for instructions for handling emergencies involving this product.

SECTION # 5: REACTIVITY DATA	
Stability	Stable under normal use conditions
Polymerization	Will not occur
Conditions to avoid	Individual cartridges may ignite if the primer is struck. Cartridge may ignite if heated to 120°C (250°F) independent of air
Incompatible Materials	Oils, Acids, Alkalis, Ammonia and other corrosive materials
Hazardous Decomposition Materials	Nitrogen Oxides, Carbon and Carbon Oxides, Sulfur and Sulfur Oxides. Other dust and fumes may also be produced. (lead, barium, aluminium, titanium and antimony)

SECTION # 6: TOXICOLOGICAL PROPERTIES	
Physical Hazards:	
Oxidizer:	Yes
Organic Peroxide:	No
Corrosive:	No
Compressed gas:	No
Irritant:	Yes
Skin Hazard:	Yes
Eye Hazard:	Yes
Toxic Agent:	No
Sensitizer:	No
Carcinogen:	No
Reproductive Toxin:	No
Blood Toxin:	Yes (lead and diphenylamine)
Nervous System Toxin:	Yes (lead)
Lung Toxin:	Yes (graphite)
Liver Toxin:	Yes (diphenylamine)
Kidney Toxin:	Yes (diphenylamine)
Potential Health Effects:	
Inhalation: After cartridges have been fired, dust, vapors, and/or fumes may be irritating to the respiratory system.*	
Ingestion: After cartridges have been fired, dust vapors, and or fumes may be absorbed by the digestive system and be irritating.*	
Skin Contact: After cartridges have been fired, dust, vapors, and/or fumes may cause irritation.*	

SECTION # 6: TOXICOLOGICAL PROPERTIES

Skin Absorption: After cartridges have been fired, dust can be absorbed through the pores if left on the skin.*

Eye Contact: After cartridges have been fired, dust, vapors, and/or fumes may cause irritation.*

Effects of Overexposure to products of combustion:

Acute Overexposure: If left untreated, weakness, vomiting, loss of appetite, uncoordinated body movements, convulsion, stupor, and possibly coma may occur. Damage is possible to the reproductive systems in both males and females.*

SECTION # 6: TOXICOLOGICAL PROPERTIES

Exposure Limits of Material:

COMPONENTS	ACGIH TLV (TWA)	OSHA PEL (TWA)	REMARKS
Cartridge case			
Copper (as dust)	1 mg/m³	1 mg/m³	Irritation, Metal fume fever, Gastrointestinal
Zinc (as oxyde)	2 mg/m³	5 mg/m³	Metal fume fever
Projectile			
Copper (as dust)	1 mg/m³	1 mg/m³	Irritation, Metal fume fever, Gastrointestinal
Nylon	Not established	Not established	
Binder (including titanium dioxide*, as dust)	10 mg/m³ (TiO_2)	10 mg/m³ (TiO_2)	A4, Lower respiratory tract irritation
Barium nitrate (as soluble compounds)	0.5 mg/m³	0.5 mg/m³	A4, Eye, Skin and Gastrointestinal irritation, Muscular stimulation
Magnesium (as oxide)	10 mg/m³	No established	A4
Propellant			
Nitrocellulose	Not established	Not established	
Graphite	2 mg/m³	Not established	Pneumoconiosis
Potassium sulphate	Not established	Not established	
Diphenylamine	10 mg/m³	10 mg/m³	A4, Liver and Kidney damage, Hematologic effects
Primer			
Lead styphnate (as lead)	0.05 mg/m³	0.05 mg/m³	A3, BEI, Central nervous system impairment, Peripheral nervous system impairment, Hematologic effects
Tetrazene	Not established	Not established	
Antimony trisulfide	0.5 mg/m³	0.5 mg/m³	Skin, Upper respiratory tract irritation
Barium nitrate (as soluble compounds)	0.5 mg/m³	0.5 mg/m³	A4, Eye, Skin and Gastrointestinal irritation, Muscular stimulation
Aluminium (as pyrotechnic powder)	5 mg/m³	5 mg/m³	Lower respiratory tract irritation
Pentaerythritol (PETN)	10 mg/m³	15 mg/m³	Eye and Upper respiratory tract irritation

***Titanium dioxide :** Titanium dioxide has recently been classified by the International Agency for Research on Cancer (IARC) as an IARC group 2B ''possibly carcinogen to humans''.

SECTION # 6: TOXICOLOGICAL PROPERTIES

CARCINOGENICITY DESIGNATION A4 - Not Classifiable as a Human Carcinogen: Inadequate data on which to classify the substance as a human and/or animal carcinogen.

NOTE: In many jurisdictions, exposure limits are similar to the ACGIH TLVs. Since the manner in which exposure limits are established, interpreted and implemented can vary, obtain detailed information from the appropriate government agency in each jurisdiction.

CARCINOGENICITY DESIGNATION A3 - Animal Carcinogen: Substance is carcinogenic in laboratory animals under conditions that are not considered relevant to worker exposure. Available human studies and evidence suggest that the substance is not likely to cause cancer in humans except under unusual or unlikely routes or levels of exposure. Worker exposure to an A3 carcinogen should be controlled to levels as low as reasonably achievable below the TLV.

BIOLOGICAL EXPOSURE INDICES (BEIs): The ACGIH has adopted a BEI for this chemical. BEIs provide an indication of worker exposure by measuring the chemical or its breakdown products in the body or by measuring biochemical changes resulting from exposure to the chemical. Consult the BEI documentation for further information.

NOTE: In many jurisdictions, exposure limits are similar to the ACGIH TLVs. Since the manner in which exposure limits are established, interpreted, and implemented can vary, obtain detailed information from the appropriate government agency in each jurisdiction.

Many jurisdictions have specific regulations requiring worksite programs for lead. Obtain detailed information from the appropriate government agency in each jurisdiction.

SECTION # 7: PREVENTIVE MEASURES

General Safety Precautions:

Avoid impact on primer which is impact sensitive

Ventilation:

Use in well ventilated area

Protective Equipment – Eyes:

Wear ANSI-approved goggles or Safety glasses.

Protective Equipment – Gloves:

Not generally required.

Protective Equipment – Respirator:

Use NIOSH approved respirator to maintain exposure level below listed PEL's and or TLV's in a non-vented area.

Protective Equipment – Hearing Protection:

Hearing protection recommended. Hearing protection should have an EPA-NRR of 20 or greater.

SECTION # 7: PREVENTIVE MEASURES

Leak and Spill Procedure /Waste Disposal:

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).

All equipment used when handling the product must be grounded.

Do not touch or walk through the spilled material.

Do not operate radio transmitters within 100 meters (300 feet) of electric detonators.

Do not clean up or dispose of, except under supervision of a specialist.

The recommended means for disposing of scrap material usually involves demilitarization of cartridges (i.e.:. separating all explosive elements for individual destruction, it can also be done by open detonation but it is not the preferred way.

After components are scrapped by proper incineration, the remaining scrap material should be disposed of or recycled in accordance with all applicable local, provincial (state) and federal regulations.

Handling and Storage Precautions:

Store in a dry, cool area. Avoid prolonged temperature at or above 85°C (185°F). Do not crush or drop packages. Avoid heat, electrical current, and acids. Keep away from fire, heat source or direct sunlight. GENERAL DYNAMICS ORDNANCE AND TACTICAL SYSTEMS – CANADA INC. products are packaged and shipped in accordance with applicable Transport Canada Regulations. To ensure the highest level of safety while storing these products, keep product in the original packaging until ready to use. When handling product, proper anti-static procedures should be maintained if loose powder is exposed.

SECTION # 8: FIRST AID MEASURES

Eyes:

Wash with large amounts of fresh water for 20 minutes keeping eyelids open. Seek medical attention.

Skin:

Wash contaminated area with soap and water at least 20 minutes.

Inhalation:

Remove from exposure, to fresh air. Get medical attention if experiencing effects of overexposure.*

Additional Information:

* All hazards marked with an asterisk (*) are not expected to be present unless the product is fired, or otherwise discharged so that gasses, fumes, or projectiles are created. Normal handling and shipping should not cause exposure to these hazards.

SECTION # 9: PREPARATION INFORMATION	
Prepared by	Health and Security Department
Phone number:	(450) 581-3080
Date:	July, 2007

NOTICE OF READER
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