Nontoxic Shotshell - Bismuth

Safety Data Sheet

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Revision Date: 01/01/2025 Supersedes Date: N/A Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Article

Product Name: NON-TOXIC SHOT SHELL LOADS

Synonyms: HEVI-Bismuth™, Hi-Bird Bismuth.

Intended Use of the Product

Small Arms Ammunition

Name, Address, and Telephone of the Responsible Party

Company

Federal Cartridge Company
900 Ehlen Dr.
Anoka, MN 55303
T (800) 635-7656
dangerous.goods@tkghunt.com

Emergency Telephone Number

Emergency Number (Transportation Incidents Only) (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)

Physical Hazards: Explosives Division 1.4S

Health Hazards: None Known

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)

Signal Word (GHS-US) **DANGER**

Hazard Statements (GHS-US) **CAUTION!**
EXPLOSIVE. KEEP AWAY FROM HEAT. DO NOT SUBJECT TO MECHANICAL SHOCK. PARTICLES FROM FIRING MAY BE HARMFUL IF INHALED. DO NOT TAKE INTERNALLY.

Precautionary Statements (GHS-US)

Prevention:
Do not handle until all safety precautions have been read and understood. Keep away from heat. No smoking. Do not subject to shock. Wear eye protection. Do not breathe fumes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.

Response:
In case of fire: Evacuate area. Fight fire with normal precautions from a reasonable distance. If exposed, concerned or you feel unwell: Call a doctor or get medical attention.

Storage: Store in accordance with applicable fire codes. Keep only in original packaging.

Disposal: Dispose of ammunition in accordance with all local regulations.

Supplemental Information:
The hazardous components of this product are encased and are not biologically available. Therefore, some health hazards do not apply to the overall product. Decomposition products, including lead, are released during the firing of cartridges. Use only outdoors or in a well-ventilated area.

Other Hazards

Other Hazards Not Contributing to the Classification: The IDLH for Nitroglycerin is 75 mg/m^3.

Accidental Injury from Fired Cartridge: Fired ammunition can create serious injury, possibly both entrance and exit wounds. To avoid serious injury, use ammunition only in good condition and originally chambered for a particular caliber. Always keep the barrel free of any obstruction. If the gun fails to fire, a delayed firing may occur, or the gun may fire upon being opened. Keep gun muzzle pointed in a safe direction. Wait 30 seconds. Avoid exposure to breech. Carefully unload. A fired bullet has an extremely long range and can cause serious injury or death. Always be sure of the backstop, and practice safe muzzle control at all times. Avoid firing at surfaces.

Unknown Acute Toxicity (GHS-US)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Name	Product identifier	% (w/w)
Bismuth	(CAS No) 7440-69-9	18-60
Lead Styphnate – Basic	(CAS No) 15245-44-0	0-1
Polyethylene	(CAS No) 9002-88-4	10-25
Nitrocellulose	(CAS No) 9004-70-2	5-10
Nitroglycerin	(CAS No) 55-63-0	0.05-2

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur, go into open air and ventilate suspected area.

Skin Contact: Wash with plenty of soap and water. If skin irritation or rash occurs: Seek medical advice.

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

Ingestion: Rinse mouth. Do NOT induce vomiting.

Most Important Symptoms and Effects Both Acute and Delayed

General: Projectiles from fired ammunition can cause puncture wounds.

Inhalation: Not expected to be a primary route of exposure.

Skin Contact: None expected under normal conditions of use.

Eye Contact: None expected under normal conditions of use.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed:

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

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Straight water stream, Water fog, Class A foam.

Unsuitable Extinguishing Media: None.

Special Hazards Arising from the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures

Explosion Hazard: Explosive. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire shall not cause virtually instantaneous explosion of almost the entire contents of the package. Do not expose to heat, or ignition sources as this could cause an explosion. If heated above 200 °C (392 °F) may explode.

Reactivity: Hazardous reactions are unlikely to occur under normal circumstances.

Advice for Firefighters

Precautionary Measures: Do not breathe fumes from fires or vapors from decomposition. Exercise caution when fighting any chemical fire. If product is unconfined, there is a greater risk for injury from projectiles.

Firefighting Instructions: In case of fire: Evacuate area. Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Self-contained breathing apparatus (SCBA) and full structural protective clothing should be worn for any fire or exposure to heat. This includes, but is not limited to, protective coat, pants, boots, firefighting gloves, SCBA with facepiece and helmet, protective hood and eye protection. (NFPA 1971)

Hazardous Combustion Products: Oxides of Barium, Lead, Antimony, Aluminum, Magnesium, Nitrogen, Carbon, and Sulfur.

Specific Methods: Perform a risk assessment before engaging in offensive firefighting operations. Unless life safety risk or significant risk of property loss is present, consider taking defensive posture, protecting exposures and maintaining safe distance until material is consumed. For further information see the video "Ammunition and the Fire Fighter" by the Sporting Arms and Ammunition Manufacturers' Institute (SAAMI).

Evacuate personnel to a safe area according to pre-determined public protection zones. Refer to pre-incident response and structural plans to determine potential for involvement of other hazardous materials. Direct water streams at product to reduce projectile hazard from exploding cartridges. After the fire is controlled, heated products can still re-ignite and project pieces of metal posing risk to fire-fighters. Full PPE including respiratory protection should be worn during salvage, overhaul and fire investigation. Do not disturb the involved area until the fire is completely extinguished and the product and packaging are allowed to cool down to ambient temperatures.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all unnecessary exposure.

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: Eliminate ignition sources.

Environmental Precautions

Avoid release to the environment.

Methods and Material for Containment and Cleanup

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

Methods for Cleanup: Clear up spills immediately and dispose of waste safely

Reference to Other Sections

See section 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Projectiles from fired ammunition can cause puncture wounds. Avoid striking the primer of unchambered cartridges. Remove ammunition 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. Do no eat, drink or smoke when using this product. 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. Wash contaminated clothing before reuse.

Conditions for Safe Storage Including Any Incompatibilities

Technical Measures: Store as defined in the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR Part 555. Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep/Store away from heat sources, ignition sources, and incompatible materials. Keep container closed when not in use.

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

Storage Area: Keep only in original container.

Specific End Use(s): Small Arms Ammunition

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Nitroglycerin (55-63-0)		
Mexico	OEL TWA (mg/m³)	0.5 mg/m³
Mexico	OEL TWA (ppm)	0.05 ppm
Mexico	OEL STEL (mg/m³)	1 mg/m³
Mexico	OEL STEL (ppm)	0.1 ppm
USA ACGIH	ACGIH TWA (ppm)	0.05 ppm
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	2 mg/m³

USA OSHA	OSHA PEL (Ceiling) (ppm)	0.2 ppm
USA NIOSH	NIOSH REL (STEL) (mg/m³)	0.1 mg/m³
USA IDLH	US IDLH (mg/m³)	75 mg/m³
Alberta	OEL TWA (mg/m³)	0.5 mg/m³
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/m³)	0.46 mg/m³
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/m³)	0.46 mg/m³
Nunavut	OEL STEL (ppm)	0.05 ppm
Nunavut	OEL TWA (mg/m³)	1.9 mg/m³
Nunavut	OEL TWA (ppm)	0.02 ppm
Northwest Territories	OEL STEL (mg/m³)	0.46 mg/m³
Northwest Territories	OEL STEL (ppm)	0.05 ppm
Northwest Territories	OEL TWA (mg/m³)	1.9 mg/m³
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/m³)	1.86 mg/m³
Québec	PLAFOND (ppm)	0.2 ppm
Saskatchewan	OEL STEL (ppm)	0.15 ppm
Saskatchewan	OEL TWA (ppm)	0.05 ppm
Yukon	OEL STEL (mg/m³)	2 mg/m³
Yukon	OEL STEL (ppm)	0.2 ppm
Yukon	OEL TWA (mg/m³)	2 mg/m³
Yukon	OEL TWA (ppm)	0.2 ppm
Yukon	OEL TWA (mg/m³)	0.15 mg/m³

Nitrocellulose (9004-70-0)		
USA - OSHA	OSHA PEL (TWA) (mg/m³)	None Established
USA - ACGIH	ACGIH TLV	None Established
International OELS	OEL TWA (mg/m³)	None Established
Bismuth (7440-69-9)		
USA – OSHA	OSHA PEL (TWA) (mg/m³)	None Established
USA - ACGIH	ACGIH TLV	None Established
International OELS	OEL TWA (mg/m³)	None Established

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. Safety glasses.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: In case of projectile hazard: Safety glasses. Face shield.

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: Do not eat, drink or smoke during use. If noise levels exceed OSHA limits while firing this product, use hearing protection in accordance with OSHA's Hearing Conservation Standard, 29 CFR 1910.95.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State:	Solid
Appearance:	Plastic tube with metal head.
Odor:	Not available
Odor Threshold:	Not available
pH:	Not available
Relative Evaporation Rate (butylacetate=1):	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:	82° C (180° F)
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:	Insoluble
Partition Coefficient: n-octanol/water:	Not available
Viscosity:	Not available
Explosive Properties:	Not available
Explosion Data – Sensitivity to Mechanical Impact:	Sensitive to mechanical impact
Explosion Data – Sensitivity to Static Discharge:	Insensitive

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions are unlikely to occur under normal circumstances.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7). However, because of the design of ammunition and its components, partial detonation upon impact or intense heat may occur. Mass detonation will not occur.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

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

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

Hazardous Decomposition Products: Metal oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects – Product

Acute Toxicity: Not classified.

LD50 and LC50 Data:

Nontoxic Shotshell-Bismuth	
ATE US (oral)	100.00 mg/kg body weight
ATE US (dermal)	300.00 mg/kg body weight
ATE US (dust, mist)	0.50 mg/l/4h

Skin Corrosion/Irritation: Not classified.

Serious Eye Damage/Irritation: Not classified.

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified.

Teratogenicity: Not classified.

Carcinogenicity: Reasonably anticipated to be human carcinogen.

Specific Target Organ Toxicity (Repeated Exposure): Not classified.

Reproductive Toxicity: Not classified.

Specific Target Organ Toxicity (Single Exposure): Not classified.

Aspiration Hazard: Not classified.

Symptoms/Injuries After Inhalation: Not expected to be a primary route of exposure.

Symptoms/Injuries After Skin Contact: May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: None expected under normal conditions of use.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

Information on Toxicological Effects – Ingredient(s)

LD50 and LC50 Data:

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
Lead, dihydroxy[2,4,6-trinitro-1,3-benzenediolato(2-)]di- (12403-82-6)	
ATE US (oral)	500.00 mg/kg body weight
ATE US (gases)	4,500.00 ppmV/4h
ATE US (vapors)	11.00 mg/l/4h
ATE US (dust, mist)	1.50 mg/l/4h
Bismuth (7440-69-9)	
LD50 Oral Rat	5 g/kg

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

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

Nontoxic Shotshell-Bismuth	
Persistence and Degradability	Not established.

Bioaccumulative Potential

Nontoxic Shotshell-Bismuth	
Bioaccumulative Potential	Not established.

Mobility in Soil: Not available.

Other Adverse Effects: None known.

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

In Accordance with DOT

Proper Shipping Name	CARTRIDGES, SMALL ARMS
Hazard Class	1.4S
Identification Number	UN0012
Label Codes	1.4S
Packing Group	None
ERG Number	114

Domestic Ground Packaged per 49CFR173.63

Proper Shipping Name	CARTRIDGES, SMALL ARMS
Hazard Class	1.4S
Identification Number	UN0012
Label Codes	None
Packing Group	None

In Accordance with IMDG

Proper Shipping Name	CARTRIDGES, SMALL ARMS
Hazard Class	1.4S
Identification Number	UN0012
Label Codes	1.4S
EmS-No. (Fire)	F-B
EmS-No. (Spillage)	S-X

In Accordance with IATA

Proper Shipping Name	Check with air carrier
Hazard Class	
Identification Number	
Label Codes	
Packing Group	

In Accordance with TDG

Proper Shipping Name	CARTRIDGES, SMALL ARMS
Hazard Class	1.4S
Identification Number	UN0012
Label Codes	1.4S
Packing Group	None

Per 49CFR173.63(b): *Limited quantities of Cartridges, small arms, Cartridges, power device, Cartridges for tools, blank, and Cases, cartridge, empty with primer.* (1)(i) Cartridges, small arms, Cartridges, power device (used to project fastening devices), Cartridges for tools, blank, and Cases, cartridge, empty with primer that have been classed as Division 1.4S explosive may be offered for transportation and transported as limited quantities when packaged in accordance with paragraph (b)(2) of this section. Packages containing such articles may be marked with either the marking prescribed in §172.315(a) or (b) of this subchapter and offered for transportation and transported by any mode. For transportation by aircraft, the package must conform to the applicable requirements of §173.27 of this part. In addition, packages containing such articles offered for transportation by aircraft must be marked with the proper shipping name as prescribed in the §172.101 Hazardous Materials Table of this subchapter. Packages containing such articles are not subject to the shipping paper requirements of subpart C of part 172 of this subchapter unless the material meets the definition of a hazardous substance, hazardous waste, marine pollutant, or is offered for transportation and transported by aircraft or vessel. Additionally, packages containing such articles are excepted from the requirements of subparts E (Labeling) and F (Placarding) of part 172 of this subchapter.

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Nontoxic Shotshell-Bismuth	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard Sudden release of pressure hazard

Nitrocellulose (9004-70-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

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

Nitroglycerin (55-63-0)	
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 %

Bismuth (7440-69-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

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

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

Canadian Regulations

Small Arms Ammunition – Shotshell Ammunition	
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 Class F - Dangerously Reactive Material **Note: Explosives are not regulated under WHMIS. They are subject to the regulations of the Explosives Act of Canada.**

Lead, dihydroxy[2,4,6-trinitro-1,3-benzenediolato(2-)]di- (12403-82-6)
Listed on Non-Domestic Substances List (NDSL)

Nitrocellulose (9004-70-0)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
WHMIS Classification	Class B Division 4 - Flammable Solid Class F - Dangerously Reactive Material

Nitroglycerin (55-63-0)
Listed on the Canadian DSL (Domestic Substances List) inventory.

1-Tetrazene-1-carboximidic acid, 4-(aminoiminomethyl)-, 2-nitrosohydrazide (109-27-3)
Listed on Non-Domestic Substances List (NDSL)

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: 01/01/2025

Other Information: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Alt. product labeling: This product may also additionally contain the following label provided in accordance with various State, Federal, and International regulations.

WARNING: Fire or projection hazard. Keep away from heat – no smoking. Do not subject to shock. Wear eye protection. Fight fire with normal precautions from a reasonable distance. Store and dispose of in accordance with local, national and international regulations.

Party Responsible for the Preparation of This Document

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Anoka, MN 55303
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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