SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Substance

Product Name: PA102 Piston Actuator

Product Code: PA102-1

1.2. Intended Use of the Product

Explosive device used to generate force.

1.3. Name, Address, and Telephone of the Responsible Party

Company

EaglePicher Technologies, LLC
1215 W C St.
Joplin MO 64801
United States of America
+1 417 623 8000
Website: www.eaglepicher.com
email: inquiry@eaglepicher.com

1.4. Emergency Telephone Number

Emergency Number : For Chemical Emergency Call CHEMTREC day or night
Within USA and Canada: 1.800.424.9300
Mexico: 1.800.681.9531
Outside USA and Canada: 1.703.527.3887 (collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

The explosive classification below only applies to US 29 CFR 1910.1200 (HCS/HazCom 2012). The explosive classification is excluded from Canada Hazardous Products Regulations (HPR, SOR/2015-17), it is regulated under the Canada Explosives Act (R.S.C., 1985, c. E-17)

Explosive Category 1.4	H204

Classification of the Substance or Mixture for exposure to internal components:

Acute toxicity (oral) Category 4	H302
Skin corrosion/irritation Category 2	H315
Serious eye damage/eye irritation Category 2B	H320

2.2. Label Elements

GHS-US/CA Labeling

Any labeling elements (pictograms, signal word, hazard, and precautionary statements) related to explosive classifications apply to the OSHA Hazard Communication Standard (HCS, 29 CFR 1910.1200) only and are excluded from Canada's Hazardous Products Regulations (HPR, SOR/2015-17)

Hazard Pictograms (GHS-US/CA) :

GHS01 GHS07

Signal Word (GHS-US/CA) : Warning

Hazard Statements (GHS-US/CA) : H204 - Fire or projection hazard.
H302 - Harmful if swallowed.
H315+H320 - Causes skin and eye irritation.

Precautionary Statements (GHS-US/CA) : P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P302+P352 - IF ON SKIN: Wash with plenty of water.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 - Specific treatment (see section 4 on this SDS).
P330 - Rinse mouth.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P250 - Do not subject to grinding/shock/friction.
P280 - Wear protective gloves, protective clothing, and eye protection.
P370+P380 - In case of fire: Evacuate area.
P374 - Fight fire with normal precautions from a reasonable distance.
P401 - Store in accordance with local, regional, national, and international regulations.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Exposure to internal components may aggravate pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No additional information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name	Synonyms	Product Identifier	% *	GHS Ingredient Classification
2,1,3-Benzoxadiazol-4-ol, 1,4-dihydro-5,7-dinitro-, 3-oxide, ion(1-), potassium	4-Benzofurazanol, 1,4-dihydro-5,7-dinitro-, 3-oxide, ion(1-), potassium / 1,4-Dihydro-5,7-dinitrobenzofurazan-4-ol 3-oxide, potassium salt / KDNBF (Potassium dinitrobenzo-furoxane) / 2,1,3-Benzoxadiazol-4-ol, 1,4-dihydro-5,7-dinitro-, 3-oxide, ion(1-), potassium (1:1) / KDNBF	(CAS-No.) 29267-75-2	100	Flam. Sol. 1, H228 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2B, H320

Full text of H-statements: see section 16

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Information is only applicable to product contents, and not to product as normally supplied. This information is applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions. Damaged or leaking devices may have energetic effects. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: For exposure to internal components: Using proper respiratory protection, immediately move the exposed person to fresh air. Encourage exposed person to cough, spit out, and blow nose to remove dust. Obtain medical attention if breathing difficulty persists.

Skin Contact: For exposure to internal components: Immediately remove contaminated clothing. Immediately drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: For exposure to internal components: Immediately rinse with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: For exposure to internal components: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: None expected under normal conditions of use. Energetic effects (blast effects, heat, noise, and shrapnel) from functioning of the product can cause serious physical injuries. For exposure to internal components: Causes skin irritation. Causes eye irritation. Harmful if swallowed.

Inhalation: For exposure to internal components: Prolonged exposure may cause irritation.

Skin Contact: For exposure to internal components: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Eye Contact: For exposure to internal components: May cause moderate irritation, including burning sensation, tearing, redness or swelling.

Ingestion: For exposure to internal components: This material is harmful orally and can cause adverse health effects or death in significant amounts.

Chronic Symptoms: None known.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. 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.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Explosive, could cause fire and secondary explosions.

Explosion Hazard: Risk of explosion by shock, friction, electrostatic discharge, fire or other sources of ignition. Explosives, Division 1.4 - Explosives (with no significant blast hazard).

Reactivity: Fire or projection hazard. Reacts violently with strong oxidizers. Increased risk of fire or explosion.

5.3. Advice for Firefighters

Precautionary Measures Fire: This product is an explosive with a fire or projection hazard. DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS.

Firefighting Instructions: DO NOT ATTEMPT TO FIGHT FIRE. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Potassium oxides. Carbon oxides (CO, CO_2). Nitrogen oxides. Combustion produces irritating gases and vapors.

5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Evacuate danger area. Remove ignition sources. Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Do not get internal components in eyes, on skin, or on clothing. Do not breathe dust.

6.1.1. For Non-Emergency Personnel

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

Emergency Procedures: Evacuate unnecessary personnel. Evacuate danger area.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Eliminate ignition sources. Evacuate unnecessary personnel. Ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Remove ignition sources. Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Absorb and contain with inert material. Place contents in suitable container for disposal.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Use only non-sparking tools. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Avoid dust production.

Precautions for Safe Handling: Keep away from sources of ignition - No smoking. Do not subject to grinding, shock, friction, electrostatic discharge. Handle empty containers with care because they may still present a hazard. Do not get in eyes, on skin, or on clothing. Avoid breathing dust. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Hygiene Measures: This product is an explosive and should only be used under the supervision of trained and licensed personnel. 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.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

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

Storage Conditions: Store under moderate temperatures recommended by competent authority. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, spark and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Isolate from incompatibles.

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

Special Rules on Packaging: Keep only in the original container.

7.3. Specific End Use(s)

Explosive device used to generate force.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

The PA-102 actuator contains one or more explosive substances or mixtures in a sealed case. Under normal handling conditions the user is unable to be exposed to the internal chemical contents of the article. The risk of chemical exposure exists only in cases of mechanical failure of the article case allowing contents to be exposed. Thus, these articles should never be punctured, incinerated, dropped, or crushed.

8.2. 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. Proper grounding procedures to avoid static electricity should be followed. Product to be handled in a closed system and under strictly controlled conditions. Use explosion-proof equipment.

Personal Protective Equipment: Gloves (for handling internal components only). Suitable protective clothing. Saftey glasses with side-shields. Insufficient local ventilation: wear respiratory protection.

Materials for Protective Clothing: For exposure to internal components: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: For exposure to internal components: Wear protective gloves.

Eye and Face Protection: For exposure to internal components: Chemical safety goggles and Face Shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Appearance	:	Orange to dark red, fine to coarse, crystals or powder
Odor	:	None
Odor Threshold	:	No data available
pH	:	4.4 – 4.7 in 1.52 g/l aqueous solution
Evaporation Rate	:	No data available
Melting Point	:	216 °C (420.8 °F)
Freezing Point	:	216 °C (420.8 °F)
Boiling Point	:	No data available
Flash Point	:	No data available
Auto-ignition Temperature	:	No data available
Decomposition Temperature	:	No data available
Flammability (solid, gas)	:	No data available
Lower Flammable Limit	:	No data available
Upper Flammable Limit	:	No data available
Vapor Pressure	:	No data available
Relative Vapor Density at 20°C	:	No data available
Relative Density	:	No data available
Specific Gravity	:	No data available
Solubility	:	Water: ≈ 1.52 g/l Slight @ 20° C / 68 °F
Partition Coefficient: N-Octanol/Water	:	1.53 @ 25 °C / 77 °F
Viscosity	:	No data available
Explosive Properties	:	Fire or projection hazard,Explosives, Division 1.4 - Explosives (with no significant blast hazard)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

Fire or projection hazard. Reacts violently with strong oxidizers. Increased risk of fire or explosion.

10.2. Chemical Stability:

Fire or projection hazard. Risk of explosion by shock, friction, fire or other sources of ignition. Heating may cause an explosion.

10.3. Possibility of Hazardous Reactions:

Hazardous polymerization will not occur.

10.4. Conditions to Avoid:

Avoid creating or spreading dust. Keep away from open flames, hot surfaces and sources of ignition. Incompatible materials.

10.5. Incompatible Materials:

Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products:

Thermal decomposition may produce: Potassium oxides. Carbon oxides (CO, CO_2). Nitrogen oxides. Irritating gases and vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Harmful if swallowed.

Acute Toxicity (Dermal): Not classified.

Acute Toxicity (Inhalation): Not classified.

LD50 and LC50 Data:

PA102 Piston Actuator	
ATE US/CA (oral)	500.00 mg/kg body weight

Skin Corrosion/Irritation: Causes skin irritation.
pH: 4.4 – 4.7 in 1.52 g/l aqueous solution
Eye Damage/Irritation: Causes eye irritation.
pH: 4.4 – 4.7 in 1.52 g/l aqueous solution
Respiratory or Skin Sensitization: Not classified.
Germ Cell Mutagenicity: Not classified.
Carcinogenicity: Not classified.
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: For exposure to internal components: Prolonged exposure may cause irritation.
Symptoms/Injuries After Skin Contact: For exposure to internal components: Redness, pain, swelling, itching, burning, dryness, and dermatitis.
Symptoms/Injuries After Eye Contact: For exposure to internal components: May cause moderate irritation, including burning sensation, tearing, redness or swelling.
Symptoms/Injuries After Ingestion: For exposure to internal components: This material is harmful orally and can cause adverse health effects or death in significant amounts.
Chronic Symptoms: None known.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

2,1,3-Benzoxadiazol-4-ol, 1,4-dihydro-5,7-dinitro-, 3-oxide, ion(1-), potassium (29267-75-2)	
ATE US/CA (oral)	500.00 mg/kg body weight

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Not classified.

12.2. Persistence and Degradability

PA102 Piston Actuator	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

PA102 Piston Actuator	
Bioaccumulative Potential	Not established.

12.4. Mobility in Soil

No additional information available

12.5. Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.
Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT

Approval No.: EX2010040701
Proper Shipping Name : RELEASE DEVICES, EXPLOSIVE
Hazard Class : 1.4S
Identification Number : UN0173

Label Codes : 1.4S

14.2. In Accordance with IMDG

Proper Shipping Name : RELEASE DEVICES, EXPLOSIVE
Hazard Class : 1.4S
Identification Number : UN0173
Label Codes : 1.4S

EmS-No. (Fire) : F-B
EmS-No. (Spillage) : S-X

14.3. In Accordance with IATA

Proper Shipping Name : RELEASE DEVICES, EXPLOSIVE
Hazard Class : 1.4S
Identification Number : UN0173
Label Codes : 1.4S

ERG Code (IATA) : 3L

14.4. In Accordance with TDG

Proper Shipping Name : RELEASE DEVICES, EXPLOSIVE
Hazard Class : 1.4S
Identification Number : UN0173
Label Codes : 1.4S

Packing Group : II

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

PA102 Piston Actuator	
SARA Section 311/312 Hazard Classes	Physical hazard - Explosive Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation Health hazard - Acute toxicity (any route of exposure)

2,1,3-Benzoxadiazol-4-ol, 1,4-dihydro-5,7-dinitro-, 3-oxide, ion(1-), potassium (29267-75-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active

15.2. US State Regulations

Neither this product nor its chemical components appear on any US state lists, or its chemical components are not required to be disclosed.

15.3. Canadian Regulations

2,1,3-Benzoxadiazol-4-ol, 1,4-dihydro-5,7-dinitro-, 3-oxide, ion(1-), potassium (29267-75-2)
Listed on the Canadian NDSL (Non-Domestic Substances List)

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

Date of Preparation or Latest Revision : 04/04/2024

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Expl. 1.4	Explosive Category 1.4
H204	Fire or projection hazard.
H302	Harmful if swallowed
H315	Causes skin irritation
H320	Causes eye irritation

Glossary of Data Source Abbreviations

ATSDR: Agency for Toxic Substances and Disease Registry (U.S. Department of Health and Human Services)
AU_WES: Australia WES
CHEMVIEW: ChemView (U.S. Environmental Protection Agency)
EC_RAR: European Commission Renewal Assessment Report
EC_SCOEL: European Commission Scientific Committee on Occupational Exposure Limits
ECETOC: European Centre for Ecotoxicology and Toxicology of Chemicals Reports
ECHA_API: European Chemicals Agency API
ECHA_RAC: ECHA Committee for Risk Assessment
EFSA: European Food Safety Authority
EPA: U.S. Environmental Protection Agency
EPA_AEGL: Acute Exposure Guideline Levels (U.S. Environmental Protection Agency)
EPA_FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act Reregistration Eligibility Decision (U.S. Environmental Protection Agency)
EPA_HPV: High Production Volume Chemicals (U.S. Environmental Protection Agency)
EPA_TRED: Risk Assessment for Tolerance Reassessment Eligibility Decision (U.S. Environmental Protection Agency)
EU_CLH: European Union Harmonised Classification and Labelling Proposal
EU_RAR: European Union Risk Assessment Report
FOOD_JOURN: Food Research Journal (1956)
IARC: The International Agency for Research on Cancer
IDLH: National Institute for Occupational Health and Safety Immediately Dangerous to Life or Health Value Profiles
IUCLID: International Uniform Chemical Information Database
JAPAN_GHS: Japan GHS Basis for Classification Data
JP_J-CHECK: Japan J-Check
KR_NIER: South Korea National Institute of Environmental Research Evaluations
NICNAS: Australia National Industrial Chemicals Notification and Assessment Scheme
NIOSH: National Institute for Occupational Health and Safety (U.S. Department of Health and Human Services)
NLM_CIP: National Library of Medicine ChemID plus database
NLM_HSDB: National Library of Medicine Hazardous Substance Data Bank
NLM_PUBMED: National Library of Medicine PubMed database
NTP: National Toxicology Program
NZ_CCID: New Zealand Chemical Classification and Information Database
OECD_EHSP: Environment, Health, and Safety Publication (Organisation for Economic Co-operation and Development)
OECD_SIDS: Screening Information Data Sets (Organisation for Economic Co-operation and Development)
WHO: World Health Organization

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.

NA GHS SDS 2015 (Can, US)