

Pyrodex® Propellants
SAFETY DATA SHEET
December 2025

The following Muzzleloading Propellants
are manufactured and distributed by Hodgdon Powder Company.

Granular

Pyrodex® RS **(EX-2017030030)**
Pyrodex® P **(EX-2017030030)**
Pyrodex® Select **(EX-2013031304)**

Pellets

Pyrodex® BP5050 **(EX-2013031283)**
Pyrodex® P5050 **(EX-2016050297)**
Pyrodex® RP4430 **(EX-2012020788)**

1.4C EX Approvals in bold parenthesis

Pyrodex (Granular and Pellets)

Safety Data Sheet

according to Federal Register / Vol. 89, No. 98 / Monday, May 20, 2024 / Rules and Regulations

Issue date: 06/11/2018

Revision date: 11/07/2025

Supersedes: 01/06/2023

Version: 3.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : Pyrodex (Granular and Pellets)

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture : Gun Powder

1.4. Supplier's details

Hodgdon Powder Company, Inc.
6430 Vista Drive
Shawnee, Kansas 66218
USA
(913) 362-9455

1.5. Emergency phone number

Emergency number : (800) 255-3924 (CHEM-TEL)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Expl. 1.3 H203
Expl. 1.4 H204
Ox. Sol. 1 H271
Acute Tox. 4 (Oral) H302
Eye Irrit. 2A H319

2.2. Label elements

GHS US labelling

Hazard pictograms (GHS US)



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H203 - Explosive; fire, blast or projection hazard
H204 - Fire or projection hazard
H271 - May cause fire or explosion; strong oxidizer
H302 - Harmful if swallowed
H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 - Keep/Store away from combustible materials.
P221 - Take any precaution to avoid mixing with combustible materials
P230 - Keep wetted with appropriate material.
P240 - Ground/Bond container and receiving equipment.
P250 - Do not subject to friction, grinding, shock.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear eye protection, protective clothing, protective gloves.
P283 - Wear fire resistant or flame retardant clothing.
P301+P312 - If swallowed: Call a doctor, a POISON CENTER if you feel unwell.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306+P360 - IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice or attention.

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P370+P378 - In case of fire: Use water to extinguish.
P370+P380 - In case of fire: Evacuate area.
P371+P380+P375 - In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P372 - Explosion risk.
P373 - DO NOT fight fire when fire reaches explosives.
P374 - Fight fire with normal precautions from a reasonable distance.
P401 - Store in accordance with local, regional, national, or international regulations.
P501 - Dispose of a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%*
Potassium nitrate	(CAS-No.) 7757-79-1	15 – 40
Potassium perchlorate	(CAS-No.) 7778-74-7	15 – 40
Sodium benzoate	(CAS-No.) 532-32-1	5 – 10
Sodium nitrate	(CAS-No.) 7631-99-4	1 – 5

*In accordance with paragraph (i) of the OSHA Hazard Communication Standard (29 CFR §1910.1200), the specific chemical identity or exact weight % has been withheld as a trade secret.

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.
First-aid measures after inhalation	: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if breathing is affected. If breathing is difficult, supply oxygen.
First-aid measures after skin contact	: IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation develops or persists, get medical attention.
First-aid measures after eye contact	: IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Get medical attention immediately. Continue rinsing.
First-aid measures after ingestion	: IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Get medical attention if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects	: Harmful if swallowed. Causes serious eye damage.
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire. Flood fire area with water from a distance. Dry chemical. Carbon dioxide.
Unsuitable extinguishing media	: Keep away from heat.

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5.2. Specific hazards arising from the chemical

Fire hazard : May cause or intensify fire; oxidiser.
Explosion hazard : Explosive. Mass fire hazard.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment.
Protection during firefighting : Use self-contained breathing apparatus and chemically protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Evacuate area. Ventilate area. Keep upwind. Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.

6.1.1. For non-emergency personnel

Protective equipment : Wear Protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye or face protection. Approved supplied-air respirator, in case of emergency.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Product is not soluble, but can cause particulate emission if discharged into waterways. Dike all entrances to sewers and drains to avoid introducing material to waterways. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.
Methods for cleaning up : Prevent further leakage or spillage if safe to do so. Do not touch or walk through spilled material. DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

6.4. Reference to other sections

See Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures. Use personal protective equipment as required. Avoid contact with eyes. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep only in original container. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Incompatible materials : Acids. Bases. Water. Alcohols. Alkalis. Oxidizing agent. Reducing agents. Nitrites. Amines.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium nitrate (7757-79-1)		
ACGIH	Remark (ACGIH®)	OELs not established
OSHA	Remark (OSHA)	OELs not established
Sodium nitrate (7631-99-4)		
ACGIH	Remark (ACGIH®)	OELs not established
OSHA	Remark (OSHA)	OELs not established

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Potassium perchlorate (7778-74-7)		
ACGIH	Remark (ACGIH®)	OELs not established
OSHA	Remark (OSHA)	OELs not established
Sodium benzoate (532-32-1)		
ACGIH	ACGIH® TLV® TWA	2.5 mg/m³ (inhalable particulate matter)
ACGIH	Remark (ACGIH®)	OELs not established
ACGIH	Regulatory reference	ACGIH 2024
OSHA	Remark (OSHA)	OELs not established

8.2. Appropriate engineering controls

Appropriate engineering controls

: Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment symbol(s):



Personal protective equipment:

Gloves. Protective clothing. Wear chemical goggles and face shield in combination.

Hand protection:
Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl.
Eye protection:
Wear eye protection, including chemical splash goggles and a face shield when possibility exists for eye contact due to spraying liquid or airborne particles.
Skin and body protection:
Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.
Respiratory protection:
Use NIOSH (or other equivalent national standard) -approved dust/particulate respirator. Where vapour, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Granular solid.
Colour	: Medium to dark gray
Odour	: Slight sulfur odor
Odour threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available

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Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Density	: 0.75 g/cm³
Solubility	: Water: Partial in water
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: 393.3 °C (740 ° F) (granular) 260 °C (500 ° F) (pellets)
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: Sensitive to mechanical impact.
Oxidising properties	: No data available
Particle characteristics	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Explosive; mass explosion hazard.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

None under normal conditions.

10.4. Conditions to avoid

Ignition sources. Heat. Sparks. Open flame. Static electricity. Storage near to reactive materials. Do not subject to shock. Contact with other chemicals. Humidity. Direct heating, dirt, chemical contamination, sunlight, UV or ionizing radiation.

10.5. Incompatible materials

Acids. Bases. Water. alcohols. Amines. Alkalis. Oxidizing agent. Reducing agents. Nitrites.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Harmful if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Potassium nitrate (7757-79-1)	
LD50 oral rat	3015 mg/kg
LD50 dermal rat	> 5000 mg/kg (Source: ECHA)
LC50 Inhalation - Rat	> 0.527 mg/l/4h

Sodium nitrate (7631-99-4)	
LD50 oral rat	1267 mg/kg

Sodium benzoate (532-32-1)	
LD50 oral rat	4070 mg/kg
LD50 dermal rabbit	≥ 2000 mg/kg Source: OECD Screening Information Data Set
LC50 Inhalation - Rat	> 12.2 mg/l air Animal: rat

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

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Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects	: Harmful if swallowed. Causes serious eye damage.
Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: Harmful if swallowed.

SECTION 12: Ecological information

12.1. Ecotoxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Bioaccumulative potential

No additional information available

12.5. Other adverse effects

Ozone : Not classified

Fluorinated greenhouse gases : No

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Product should not be allowed to enter drains, water courses, or the soil. Dispose in a safe manner in accordance with local/national regulations. DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description (DOT)	: UN0499 Propellant, solid, 1.3, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate) UN0501 Propellant, solid, 1.4, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)
UN-No.(DOT)	: 0499 (for 1.3C) ; 0501 (for 1.4C)
Proper Shipping Name (DOT)	: Propellant, solid (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)
Class (DOT)	: 1.3 - Class 1.3 - Explosives (with predominately a fire hazard) 49 CFR 173.50 1.4 - Class 1.4 - Explosives (with no significant blast hazard) 49 CFR 173.50
Packing group (DOT)	: II - Medium Danger
Hazard labels (DOT)	: 1.3C – Explosive 1.4C - Explosive



DOT Quantity Limitations Passenger aircraft/rail : Forbidden
(49 CFR 173.27)

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DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: Forbidden (for 1.3C), 75 kg (for 1.4C)
DOT Vessel Stowage Location	: (for 1.3C) 04 - The material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel. (for 1.4C) 02 - The material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" in closed cargo transport units or "under deck" in closed cargo transport units on a passenger vessel.
DOT Vessel Stowage Other	: (for 1.3C) 25 - Shade from radiant heat, 26E - Stowage category "13" and, for on deck stowage, non-metallic lining of closed cargo transport unit is required when not in effectively sealed, sift-proof packages; Stowage category "10" permitted when in effectively sealed, sift-proof packages (for 1.4C) 25 - Protected from sources of heat
Other information	: No supplementary information available.

Transportation of Dangerous Goods

Transport document description (TDG)	: UN0499 PROPELLANT, SOLID, 1.3C, II; UN0501 PROPELLANT, SOLID, 1.4C, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)
UN-No. (TDG)	: UN0499 (for 1.3C) ; UN0501 (for 1.4C)
Proper Shipping Name (TDG)	: PROPELLANT, SOLID
TDG Primary Hazard Classes	: 1.3C - Class 1.3C - A substance or article which has a fire hazard along with either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard 1.4C - Class 1.4C - A substance or article which presents no significant hazard; explosion effects are largely confined to the package and no projection or fragments of appreciable size or range are to be expected
Packing group (TDG)	: II - Medium Danger
Explosive Limit and Limited Quantity Index	: 0
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: Forbidden
Passenger Carrying Ship Index	: 10 kg

Transport by sea (IMDG)

Transport document description (IMDG)	: UN0499 PROPELLANT, SOLID, 1.3C, II; UN0501 PROPELLANT, SOLID, 1.4C, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)
UN-No. (IMDG)	: 0499 (for 1.3C) ; 0501 (for 1.4C)
Proper Shipping Name (IMDG)	: PROPELLANT, SOLID
Class (IMDG)	: 1 - Explosives
Limited quantities (IMDG)	: 0

Air transport (IATA)

Transport document description (IATA)	: UN0499 PROPELLANT, SOLID, 1.3C, II; UN0501 PROPELLANT, SOLID, 1.4C, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)
UN-No. (IATA)	: 0499 (for 1.3C) ; 0501 (for 1.4C)
Proper Shipping Name (IATA)	: Propellant, solid
Class (IATA)	: 1 - Explosives

SECTION 15: Regulatory information

15.1. US Federal regulations

Pyrodex (Granular and Pellets)	
All chemical substances in this product are listed as "Active" in the EPA (Environmental Protection Agency) "TSCA Inventory Notification (Active-Inactive) Requirements Rule" ("the Final Rule") of Feb. 2019, as amended Feb. 2021, or are otherwise exempt or regulated by other agencies such as FDA or FIFRA	
SARA Section 311/312 Hazard Classes	Physical hazard - Explosive Physical hazard - Oxidizer (liquid, solid or gas) Health hazard - Serious eye damage or eye irritation Health hazard - Acute toxicity (any route of exposure)

This product or mixture is not known to contain a chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

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15.2. International regulations

No additional information available

15.3. US State regulations

WARNING: This product can expose you to Silica: Crystalline, quartz, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Component	Carcinogenicity	Developmental toxicity	Reproductive toxicity male	Reproductive toxicity female	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Silica: Crystalline, quartz (14808-60-7)	X					

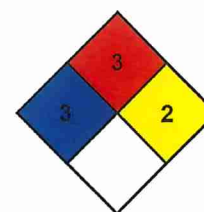
Component	State or local regulations
Sulfur (7704-34-9)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Potassium nitrate (7757-79-1)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List
Sodium nitrate (7631-99-4)	U.S. - Massachusetts - Right To Know List; U.S. - Pennsylvania - RTK (Right to Know) List
Potassium perchlorate (7778-74-7)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Massachusetts - Right To Know List; U.S. - Pennsylvania - RTK (Right to Know) List
Distillates, petroleum, hydrotreated light naphthenic (64742-53-6)	U.S. - Massachusetts - Right To Know List
Silica: Crystalline, quartz (14808-60-7)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List

SECTION 16: Other Information

Issue date : 6/11/2018
Revision date : 11/7/2025
Other information : Author: JMM.

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
NFPA fire hazard : 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.
NFPA reactivity : 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.

HMIS Hazard Rating
Health : 3*
Flammability : 3
Physical : 2
Personal protection : X
X - Special handling directions



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.